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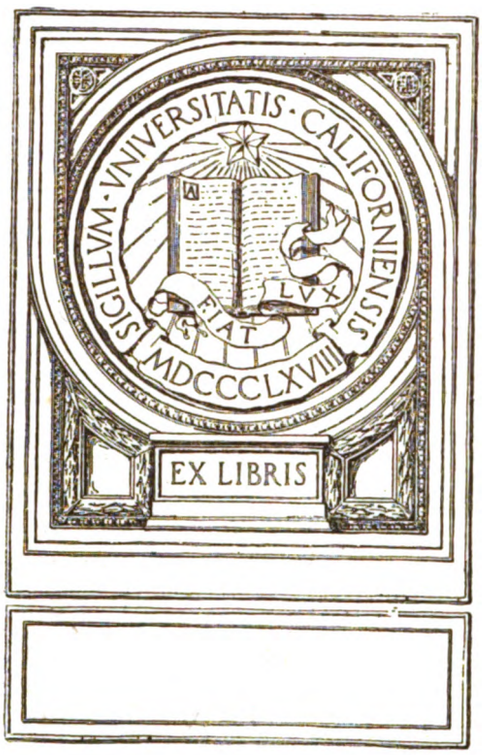
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THE

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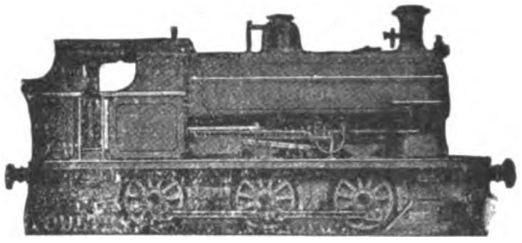
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Quand le bâtiment va, tout va.—PROVERB.

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FORTHCOMING EVENTS.

Friday, January 5.

Town Planning Institute : Paper entitled "A New Town Plan for the City of Dublin," by Professor P. Abercrombie, M.A., F.R.I.B.A., and S. A. Kelly, F.S.I., at 6 P.M.

Saturday, January 6.

Institution of Municipal Engineers : Eighth Annual General Meeting, at 4 Southampton Row, W.C., at 11.30 A.M.

Monday, January 8

Royal Institute of British Architects : General Meeting (Business), at 4 P.M.

Wednesday, January 10.

Manchester Society of Architects : Paper entitled "In Greece, and on some of the Islands in the Ægean Sea," by Mr. J. B. Gass, F.R.I.B.A., at 6.30 P.M.

Association of Engineers-in-Charge : Paper entitled "The Design and Construction of Industrial Premises," by Mr. A. Alban H. Scott, M.S.A., at St. Bride's Institute, at 8 P.M.

Thursday, January 11.

Society of Architects : Annual General Meeting, at 6 P.M.

THE HOUSING PROBLEM.

ADMITTEDLY one of the most pressing social problems of the day, postponed for the moment only by reason of the necessity for the concentration of all our energies on the winning of the war, is that of housing. Much discussion is going on, many conferences are being held, many views are being expressed. Whilst much earnest endeavour and public spirited anxiety for the commonweal is manifest, discussion has to a certain extent been deprived of its value by an obvious dialectical effort to prove the other fellow wrong.

The basis of the housing problem lies in the fact that there is at the present moment an enormous shortage of housing accommodation, particularly for that section of the community generally known as the working classes, but whom, in our view, it would be more accurate to describe as the weekly wage earners. This shortage was apparent before the war, but has been aggravated during the last two years, not only by the normal increase of population and therefore of requirement, but by the diversion of labour and material from the provision of housing to other purposes more immediately concerned with the war.

The problem has been complicated during the war by the dislocation of industry ensuing therefrom. Congestion has arisen in some centres, where an abnormal influx of population has followed the establishment of fresh war industries. Whilst this congestion has partly been met by the building of a considerable number of permanent houses, much of the accommodation provided is of a purely temporary character. Thus the stringency of the shortage is for the moment relieved, but complication of the problem arises by the uncertainty as to the location after the war of the temporarily aggregated workers.

In any consideration of the housing problem, notice must be taken of this element of uncertainty. Schemes by local authorities must not be based upon present conditions of population without very clear reference to those likely to obtain in the future. It is easy enough to lay out an area of some hundreds of acres on a town planning scheme, but this will not make a town. If a municipality decides to build a few hundred cottages for the working classes, it must be fully satisfied that there will be work for the prospective tenants. Not only is the problem complicated by the abnormal distribution of population, but the war further obscures the solution by an abnormal scale of wages.

Complicated and abnormal as the war conditions may be, there still remains no doubt that, on the resumption of peace, the housing problem will be more rather than less acute. There will be an indubitable shortage of accommodation, the cost of building for at least several years to come will be considerably higher than in pre-war times, the possible rents that tenants of the working class will be able or willing to pay is a matter of extreme dubiety.

It must be remembered that amongst weekly wage earners there are at least three distinct grades, the casual worker, the unskilled and the skilled workman. The last grade as far as income is concerned merges into the large section of the population generally described as lower middle-class, but who are quite as much workers as those whose occupation is of a more manual type. This section must be included with the working classes at any rate in any question of small house or cottage provision.

The shortage of small house accommodation is unquestionably due to a cessation of activity by private enterprise, or, in other words, speculative building in their

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erection. The reason for this cessation is, however, not so unquestioned and has been the ground for much of the dialectics displayed in discussion. As a matter of fact, the reason is complex, and that quite apart from the deterrent effect of war conditions.

There can be little doubt in any unprejudiced mind that the Finance Act 1909-10 has been one adverse influence, more particularly when the method of its operation came to be revealed and understood. It has caused a feeling of mistrust in the minds of those who were wont to finance the speculative builder, it has damped the sporting interest of the speculator, particularly in the light of the decisions in the Lumsden case. Other certainly operative causes were the increased cost of labour and materials, and particularly in the case of weekly property, the growth of expenditure out of the rates by corporations and poor law authorities. It has been argued that the operation of the Town Planning Act of 1909 and the consequent limitation of number of houses to the acre, in accordance with town planning principles, has deterred builders from taking up land, but this to our mind is fallacious, for it is the ground rent that is determined by the number of houses to the acre, not, except where unsuitable by-laws apply, the cost of building, and even in the exception, the ground rent would in a free market bear the brunt.

As is to be expected in any complicated problem, numerous panacea have been put forward by different exponents as solutions. The repeal or amendment of the prejudicial clauses of the Finance Act 1909-10 has been demanded and indeed promised by the Government. Some would have the community, either through the State or through the municipal authorities, provide the housing which it does not pay private enterprise to undertake. Objectors to this course, and with them we agree, urge that it would be much cheaper for the community to assist private enterprise. Reduction of rates, State loans and free land all have their advocates. Modification of building by-laws is urged with no small degree of plausibility, particularly by town-planning enthusiasts. There can be no doubt that our present by-laws are needlessly extravagant in respect of road-making, when the principle of diffuse population is adopted in lieu of the thirty houses per acre permitted by the Public Health Acts. They are also needlessly extravagant in the stipulations for sturdy, rather than sound, construction, and the cost of cottage building might be greatly reduced without sacrifice of healthy conditions by a more common-sense latitude in construction. Standardisation is another fetish of which the practical application is not easy to imagine as resulting in anything better than the miles of distressingly unhuman streets that are to be seen in some of the more rapidly developed manufacturing towns in this country. It is all very well for advocates of standardisation to talk in nebulous terms of readjusting the building unit, with the object of reducing the number to the minimum and increasing their size to the maximum compatible with economic duplication and handling, as did Mr. Grosvenor Atterbury, in an address delivered before the Fifth National Housing Conference in the U.S.A., but our jerry builders have already done this much over and over again and developed acres of slums in the doing.

NOTES AND COMMENTS.

Whether the National Gallery Bill becomes law or not, there is still room for the policy advocated by the following signatories:—Professor Frederick Brown, Principal of the Slade School; W. H. Brocklehurst, Chairman of the Art Gallery, Bradford; George Clausen, R.A.; R. Grundy, Editor of the "Connoisseur"; R. L. Harmsworth, M.P.; Francis Howard, Chairman of the National Portrait Society and Hon. Secretary of the International Society of Sculptors, Painters, and Gravers; Augustus John, President of the National Portrait Society; Gerald F. Kelly, R.H.A.; P. G. Konody; John Lavery, A.R.A.; William Orpen, A.R.A.; Lord Rothermere; Frank Rutter, Curator of the City Art Gallery, Leeds; Charles Sims, A.R.A.; P. Wilson Steer; Edward Stott, R.A.; H. G. Wells; T. Butler Wood, Curator of the Cartwright Memorial Hall, Bradford; to the proposal thus expressed:

"We advocate a Bill to forbid the sale or export (except to the National Gallery during the war and for two years after) of the pictures earmarked by the Board of the National Gallery, and with a view to purchasing these for the nation, and augmenting National Gallery funds, to levy an export duty of 25 per cent. on all pictures not produced within the last fifty years, or brought into Great Britain within the last ten years. Pending the discussion and passing of the Bill we advocate an Order of Council forbidding the sale or export of any of the earmarked works of art."

This is no time for raising money for the purchase of the most important works of art, and the Defence of the Realm Act should surely extend to its art treasures, which the circumstances of war threaten with permanent exile.

The sweeping away of "Bracciani's" would be regarded as a national calamity by a vast number of those who in their student days have profited from their unique and very valuable collection of plaster moulds and casts from the finest examples of sculpture in the world, including in that sculpture examples of architectural ornament; therefore it is gratifying to know that, thanks to the generosity of Mr. William Petersen, the well-known shipowner, who has kindly supplied the means of carrying on the business during the war, arrangements have been made whereby not only will the collection be preserved in its entirety, but under the supervision of the Royal Academy a regular supply of casts will, it is hoped, be available for the requirements of art schools and museums throughout the country. It is further hoped that after the war, should no assistance be obtained from the Government, a fund may be raised in order that the collection may be purchased and placed under the permanent control of the Royal Academy, thus ensuring its preservation for the nation.

There is a proposition on foot that a radical innovation in University teaching should be introduced at Columbia University, U.S.A. We see no reason why correspondence teaching should not be part of the work of a university, as long as it is distinctly recognised that this method is inferior in value to that of *viva voce* teaching, with its inestimable advantage of personal contact between tutor and pupil. Dr. J. C. Egbert, formerly Professor of Latin at Columbia, and at present its Director of Extension Teaching, recommends this innovation in his annual report. He argues that offering courses by mail is part of the legitimate functions of a modern University, in spite of the fact that it has "long been considered the particular domain of private institutions, which have exploited such instruction for pecuniary gain." He urges that Columbia shall adopt this method on the same basis as that of its *viva voce* classes—that is to say, without any idea of making a profit thereby, but at cost price or even less than cost. It is reported that Professor Egbert will have to overcome a considerable prejudice against his proposal; but the success of his extension plans for democratising the work of the University is likely to count ultimately in his favour.

The Rev. Claude Jenkins, Librarian and Keeper of the Records of Lambeth Palace, recently gave a lecture to the members of the Royal Historical Society on "The Historical Manuscripts of Lambeth." The librarian, he said, taking humanity in more than one aspect for his province, recognised perforce that the flotsam and jetsam of one generation might become by survival precious relics full of instruction for another, as he took from a book to which it had served as a marker for perhaps 300 years the bill of an undergraduate of Trinity College, Cambridge, in 1572, in the writing of John Whitgift; or happened in a dusty corner of an old tower upon the

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accounts rendered by Messrs. Twining, at the sign of the Golden Lion in Devereux Court, near the Temple, for the fortnightly pound of tea supplied at a cost of one pound sterling to the family of Archbishop Potter when George II. was king. Two items of interest at the present moment were "A learned discourse against England's engaging in Foreign Wars" (No. 292), which really belonged to the Carew collection, with its conclusion: "Honor attayned by Newtralitie in being the Arbitrer of all differances between the mightiest Neybours," and "A breefe discourse what order was best for repulsing a forren force if at any tyme they should invade us by sea in Kent or elsewhere" (No. 490). The Bacon-Shakespeare controversy, of which he spoke with bated breath, provided a fairly constant stream of readers for the Bacon and Gibson papers, and there would be even more if it were generally realised that Birch and Spedding were sometimes no more to be trusted for an exact representation of a document than his great and versatile predecessor, David Wilkins. There were several of the cyphers that had never been read, and in the only one he had ever had time to work out he found to his amusement an unrecorded love passage in the life of Queen Elizabeth.

A correspondent of the "Indian Statesman" gives some interesting particulars regarding the steady constant changes which are being carried out in Delhi. The whole of the large area which spreads from the Nicholson Gardens, the Cemetery and the Curzon House grounds to the city walls and the Kashmiri and Mori gates has, he states, now been levelled and grassed, and is now a green and pleasing expanse, instead of the old untidy, unkempt field. A great change has also been effected in the celebrated Chandni Chauk. The pavement which ran down the centre of that thoroughfare, and which occupied the line of the old branch canal, has been nearly all removed, and traffic can now move freely from side to side. The avenue of trees which is the most noticeable feature of this well-known street, running down the central causeway which formerly lined the canal, has not been interfered with, and it is intended in the near future to fill up the gaps which time and accidents have occasioned in the ancient avenue. The old untidy and unsanitary drains which formerly ran along the sides of the road have been removed, and a stone platform is being erected along the line of the shops on either side which will be a great convenience to the pedestrians who always crowd this busy thoroughfare. Great improvements have also been made in the direction of Fez Bazaar and the Delhi Gate. With the opening of the New Delhi cantonments the Darya Ganj barracks were no longer required, and the lines have been dismantled and the roofs removed from the barracks to prevent squatters from taking up their abode in the empty houses. The line of shops, which was always an eyesore, on the left hand side of the bazaar, and the waterway which ran down the centre, have been removed, and there is now a broad, wide, open street leading down to the Delhi Gate. This gate itself has been "islanded," the city walls on either side having been cut through and roads for entering and leaving Delhi have been constructed on either side of the Gate. This change, if it has somewhat spoilt the picturesque aspect of the well-known Gate, has at the same time removed what was a menace to the safety of both motorists and pedestrians entering or leaving the city on this side.

THE death is announced of Signor Mariano Vincenzo Filippo Morelli, the artist responsible for the beautiful photographic reproductions of famous pictures in the National Gallery, London. Born in Rome in 1819, he came to this country in 1857, and during an association of over half a century with the National Gallery, he had, it is stated, accumulated over 5,000 negatives. Signor Morelli, who had his studio at Brockley, was also a well-known teacher of drawing.

ILLUSTRATIONS.

CALEDONIA PREPARATORY SCHOOL FOR GIRLS, COODEN BEACH, BEXHILL, SUSSEX.

THE perspective view of this school, illustrated in "The Architect" last week, drawn by Mr. Briant A. Poulter, F.R.I.B.A., was exhibited at the Royal Academy, 1916. It shows the main front, which faces south, and stands on a slight rise overlooking Pevensey Bay and the marshes, with a view of Beachy Head on the west side and of Hastings Point on the east. The work was carried out for the Misses Wyne & Barker as a preparatory school for about thirty girls.

The walls are built with purple bricks, with red sand-faced bricks for quoins and arches; and the roofs are covered with Nyewood red sand-faced tiles. The late Messrs. Martin & Co., of Tonbridge, were the builders, and the architects were Messrs. Tubbs, Messer & Poulter.

HOUSE AT BEAULIEU, HAMPSHIRE, FOR THE RIGHT HON. LORD MONTAGU.

THE perspective view of this house, included amongst our illustrations last week, was drawn by Mr. Briant A. Poulter, F.R.I.B.A., and was exhibited at the 1916 Royal Academy. It shows the garden front, which faces south and overlooks the Solent, with a view of the Isle of Wight across the water.

The whole of the materials were found on Lord Montagu's estate at Beaulieu, the walls being built with 2-inch brown sand-faced bricks; the upper storey is finished with elm weather-boarding, and the roofs are covered with old sand-faced tiles.

The windows and all internal joinery are of oak felled on the estate. The glazing is of lead, and all the ironwork and casements are wrought.

Messrs. Crosby & Co., of Farnham, were the builders, and the architects were Messrs. Tubbs, Messer & Poulter.

The principal rooms are panelled with oak, and have brick fireplaces.

The house was completed just before the outbreak of the war.

[The descriptions of these drawings have been delayed by the absence of the architects on war service.—ED.]

THE OLD MILL, FRIMLEY, SURREY, THE MAULTWAY HOUSE, CAMBERLEY, SURREY.

THE drawings of these houses, of which Mr. H. Reginald Poulter is the architect, were exhibited at the Royal Academy last year.

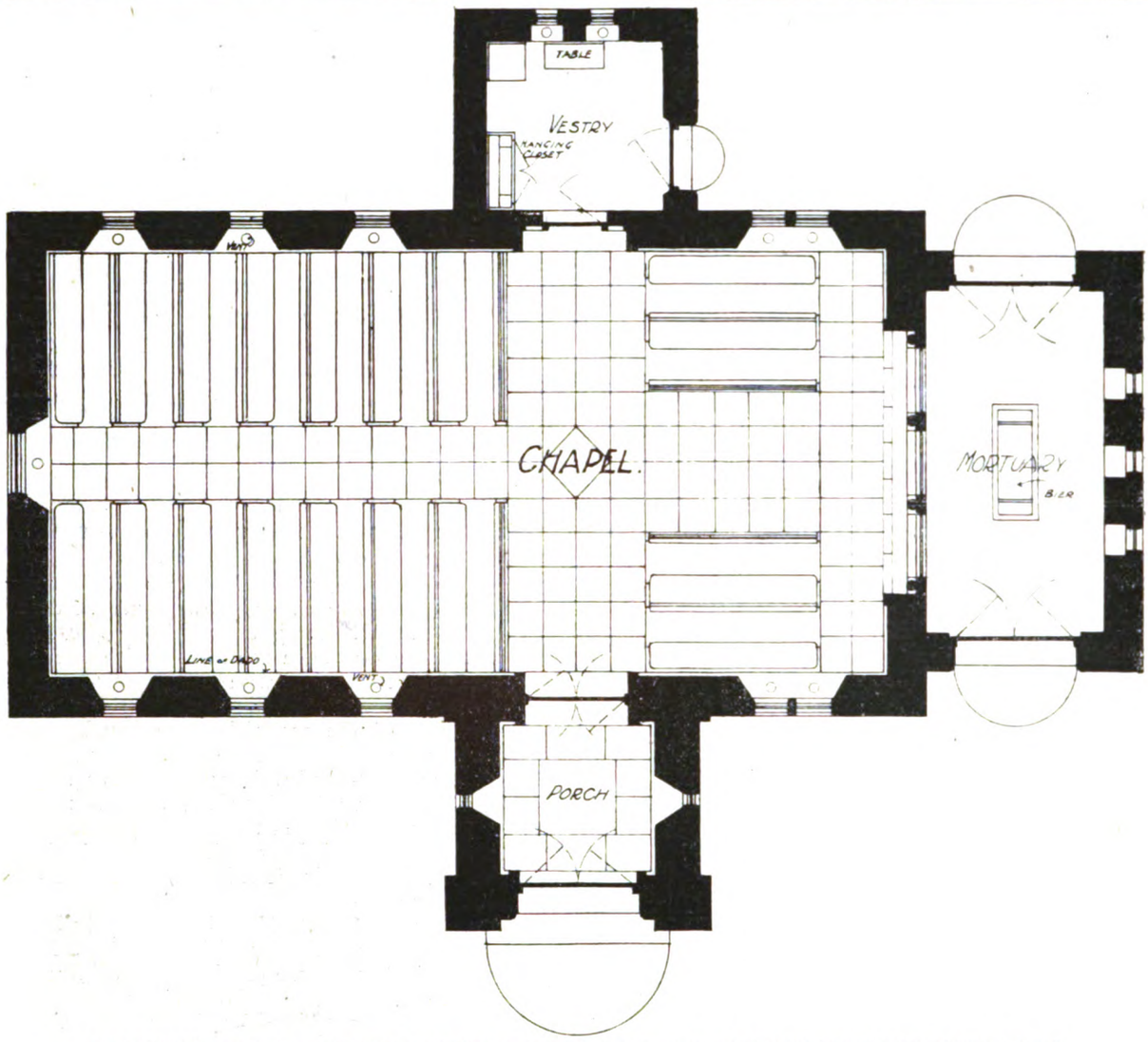
WHITLEY AND MONKSEATON U.D.C. CEMETERY BUILDINGS.—CHAPEL EXTERIOR.

THESE buildings have been erected at Hartley, Northumberland, for the Whitley and Monkseaton Urban District Council, by Mr. W. D. Allison, Whitburn, Sunderland, and his men from the designs and under the supervision of the late Mr. Edward Cratney, F.R.I.B.A., M.S.A., whose designs were selected in competition by the assessor, Mr. A. W. S. Cross, M.A., and were illustrated in "The Architect" of March 13, 1914. Photographs of the lodge, shelter, and entrance gates appeared in our issue of September 15, 1916.

The site on which these buildings have been erected is close to the coast-line and directly exposed to the severe north-east gales. The questions of suitable materials and character of design were of great importance, and for this reason granite was fixed upon for the facing of walls, oak and teak for external woodwork, and simplicity of detail was the keynote that influenced the design throughout.

The Whitley and Monkseaton Urban District Council are to be congratulated on their sound judgment in erecting such a well-built group of buildings in view of the exposed situation.

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CEMETERY CHAPEL, HARTLEY, NORTHUMBERLAND, FOR THE WHITLEY AND MONKSEATON U.D.C.

GENERAL.

COLONEL GEORGE FREDERICK ALLENDER, of Bidston, Cheshire, architect, who was at the outbreak of war appointed Deputy-Assistant Quartermaster-General, Western Command, died on September 29, leaving estate valued at £22,396 gross.

SECOND-LIEUTENANT FRANK SIDNEY CHESTERTON, R.F.A., of 30 Wynnstay Gardens, Kensington, W., architect, who died whilst on active service in France, on November 11, left estate of the gross value of £10,582, of which £8,673 is net personalty. Mr. Chesterton was born in 1875, and became a member of the Architectural Association in 1901. He was also a Fellow of the Surveyors' Institution.

SIR WILLIAM BLAKE RICHMOND, K.C.B., R.A., will be best remembered by our readers as the artist who was responsible for much of the interior decorative work of St. Paul's Cathedral. He has recently finished a novel, "The Silver Chain," which Messrs. Cecil Palmer & Hayward have almost ready for publication. The story shows all Sir William's rare powers of mind, and the pen pictures he draws of Italy and Sicily are said to be really memorable.

THE Australian Commonwealth offices in London have been transferred from 72 Victoria Street to Australia House, in the Strand. Owing to delays caused by the war the internal fittings of the new building will not be completed throughout for some time, but the fourth, fifth, and sixth floors are now in occupation. As the lease of the Victoria Street premises has nearly run out the High Commissioner decided to take immediate possession of the upper part of the building. The new offices (for which Messrs. A. Marshall Mackenzie and A. G. R. Mackenzie, FF.R.I.B.A., are the architects) have involved a total expenditure of about three-quarters of a million sterling, more than half of which is represented by the cost of the freehold, which was purchased from the London County Council for £379,000.

LOVEKYN'S CHANTRY CHAPEL, KINGSTON-UPON-THAMES.*

KINGSTON is fortunate in possessing a relic of the past in a state of fairly good preservation in the shape of an original detached Chantry Chapel.

It is rather difficult to assign a date when chantries were first introduced, but there are few, if any, in this country whose foundations are prior to the thirteenth century.

The original idea for the foundation of chantries would appear to have been to secure in perpetuity the celebration of masses and recital of prayers for the repose of the soul of the founder and his connections; but after a time other objects were associated with the duty of the chantry priest, such as assisting the parish priests in their work, preaching, visiting the sick, and, more particularly, the education of the young.

There were three chantries in Kingston, but none of these included any educational duty. The earliest and most important was Lovekyn's Chantry, founded in 1309, devoted exclusively to prayers for the dead. Indeed, it is especially provided that the warden and his assistant priest should undertake no other duty or service. In 1459 William Skerne obtained permission to found and endow a chantry in St. James's Chapel in Kingston Church, in augmentation and sustentation of Divine service in the parish church, and for that purpose there was to be one chaplain in perpetuity, his primary duty being to celebrate every day for the King and the Bishop of Winchester, whilst living, and for the souls of the father and mother of the founder and his rela-

* Paper read by Mr. George Thatcher at a meeting of the Upper Norwood Athenæum at Kingston.

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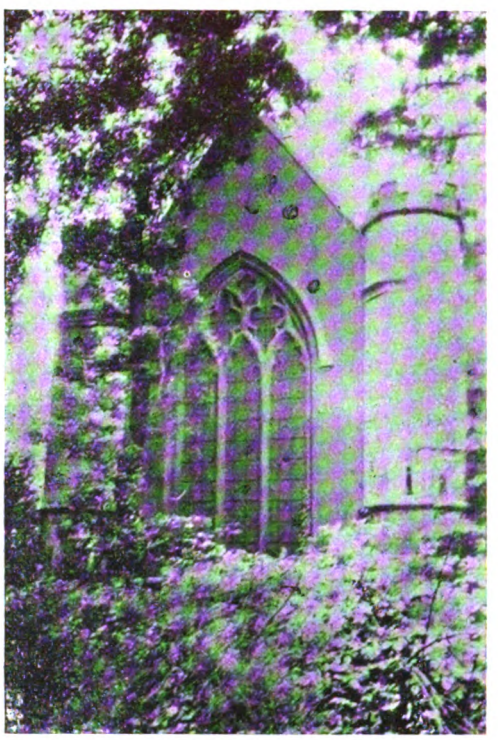
tions and all faithful deceased. In 1477 Robert Bardesey obtained a license for the foundation and endowment of the Fraternity of the Holy Trinity in Kingston, to consist of himself and others, both clerks and lay, and of either sex. One of the objects was the augmentation of Divine service in Kingston Church, for which purpose there was to be a chaplain. In neither of these cases does there appear to have been any additional building to the church, but existing chapels were handed over; though I am aware that some are of opinion that Bardesey built Trinity Chapel after he had obtained the license in mortmain. There are numerous instances throughout the country where the duty of the chaplain was supplemented by educational work. For instance, at Barnard's Castle, Durham, there was to be a priest to say mass and keep a free grammar school. Bartholomew de Burghersh (one of Edward the Third's original Knights of the Garter) founded a chantry in 1345 for five priests, and to this was afterwards added a free school. Holden's Chantry at Chesterfield, Rolff's Chantry at Gosfield, Monox's Chantry at Walthamstow, Richmond's Chantry at Cirencester, and many others are those in which the priest's duty was to say mass and educate children. The chantry buildings themselves differed considerably; sometimes it was an entirely separate establishment, apart from any church, with a chapel and residences for the chaplain and his assistant (Lovekyn's is a notable instance of this class); sometimes the chantry chapel formed part of the building of the cathedral or church; sometimes it was built in the church itself, though not near the tomb of the founder, such as the chantry chapel of the Black Prince at Canterbury Cathedral, which is in the crypt; sometimes it is above the tomb, as the chantry chapels of Henry the Fifth and Abbot Islip in Westminster Abbey; and sometimes it is part of the monument itself, as in the tombs of Bishops Wykeham and Waynflete in Winchester Cathedral.

The office of a chantry chaplain does not appear to have been thought much of by the other clergy, and it is pretty certain that some of them, at any rate, were not worthy of the office. Many of them took it because they could get nothing better, either from want of influence or some fault of their own. Where their duty (as in the Lovekyn case) was confined exclusively to saying one mass a day and reciting a certain number of prayers, they must have had a good deal of time on their hands; and, unless studiously given, they might be tempted to get into mischief. When the work of the church was added, they were, of course, better off; and when they were good men, and were on good terms with the parish priest, were able, no doubt, to be very useful and to do a great deal of good; but men of bad character, or quarrelsome, or idle, must have been great thorns in the flesh to the rector or vicar, being independent both as regards remuneration or removal, for no one could remove them but the Bishop, and he only for very good cause indeed.

The Lovekyn Chantry was founded by Edward Lovekyn in 1309. He was a person of importance in Kingston, having been twice Bailiff (answering to the present office of Mayor) in 1277 and 1284, and later on he was a citizen of London also. He was twice married, and had a son by each marriage, Robert and John. He must have been an elderly man when he commenced the necessary steps towards his foundation. The first thing to be done was to obtain the King's license. For some time previously the powers in being had watched with uneasiness the accumulation of property by the religious bodies. The acquisition of property by them had been forbidden by Magna Charta in general terms, but a direct blow had been aimed at the practice in the reign of the late King Edward I. by the Act De Viris Religiosis, which enacted in the most direct way that religious bodies should not have power to hold land. The only way Edward Lovekyn could get over this initial difficulty was to obtain the King's license; and this was done at a cost of 100*s.*, a large sum in those days. The next thing was to get the Bishop's license for holding Divine service in the building, and this was also obtained and paid for. The building was then erected and consecrated and dedicated to St. Mary Magdalene, and the first chaplain instituted. Lovekyn, however, did not live long enough to see it, but died within a few months.

He was succeeded by his elder son Robert, who does not appear to have approved of the gift his father had made, as complaints were made against him by the chaplains that he took the rents for himself of some of the property of the foundation. There was a lawsuit in the Ecclesiastical Courts, which terminated in favour of the chaplains, and Robert Lovekyn was excommunicated till he complied with the Bishop's mandate. Nobody seems to have troubled about keeping the chapel in repair, and it fell into ruin within forty years.

Robert Lovekyn was succeeded by his younger brother John, who not only carried out his late father's wishes, but amplified the foundation considerably from his own property; he rebuilt the chapel, and built a house for the residence of the priest and an assistant. He also had to obtain and pay for the licenses of the King and the Bishop, and he obtained the consents of the patrons of the living of Kingston and the vicar,



THE EAST END.

in return for giving a house for the residence of the vicar, in lieu of the former vicarage. The present chapel is all that remains of the buildings he erected. The house is stated to have been on the west side of it, and the site is probably occupied by the present side road.

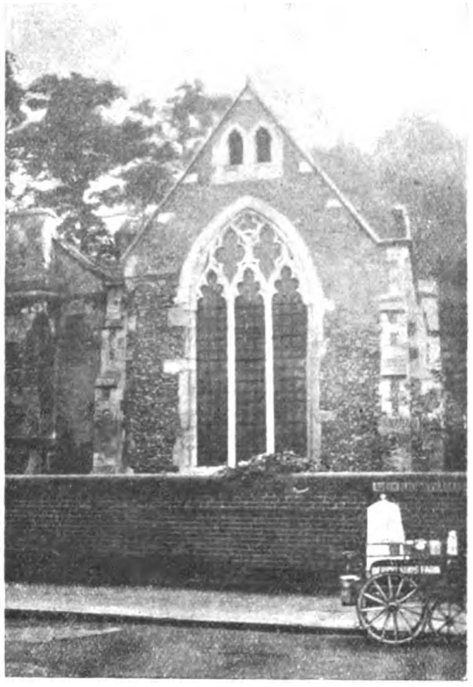
The building is about 38 feet long and 17 wide, with a height of 20 feet to the wall plate; the piscina still remains, but the altar has long since disappeared. There is a very fine east window, and below the cills on the inside are two carved brackets, with heads. One representing Edward III. still remains, but the other, believed to have represented his Queen, Phillippa, has been broken off.

John Lovekyn obtained a charter, which contains the most minute directions as to the duties of the chaplain (now called the warden) and his assistant priest (now called the chaplain) and the management of the property. The right granted to Edward Lovekyn for the employment of a chaplain was confirmed, and he was to have not more than two additional priests. Their duty was to perform Divine service daily and to offer prayers for the King and Queen, the Bishop, and John Lovekyn and

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his wife while living, and for the repose of their souls when dead, as also for the souls of Edward and Mabel Lovekyn and the faithful dead; and they were expressly forbidden to bind themselves to any other office or service, or to any other person whatever in any way whatever. They were to be in constant residence. The warden had the management of the property, but was to apply the income in the way provided by the charter; his assistants, who seem to have been then called chaplains, were to be paid 40s. a year and to be provided with board and lodging in the warden's house, and the clothes of office. The appointment of wardens and chaplains was to be made by the Bishop of Winchester. Although the charter provided for more than one assistant priest or chaplain, yet there does not appear to have been more than one at a time.

John Lovekyn made further gifts to the endowment later on. He rose to considerable importance, and was Mayor of London four times. He was twice married, but does not appear to have left children. His widow married his former apprentice, William Walworth, afterwards Sir William Walworth, Mayor of London at the time of Wat Tyler's rebellion. Walworth himself and another benefactor (John Wenge) made further gifts, so that the endowment at this time must have been



THE WEST END.

very considerable, including about 300 acres of farmland, mills, and shops and houses in London and Kingston. There is a list of property at the time of the dissolution of chantries, but before that Henry VIII. had seized and sold a considerable portion of land on the attainder of Charles Carew, the last warden.

There is a list of chaplains down to John Lovekyn's charter, and of wardens from then to 1540, with two breaks, 1405-1448 and 1485-1520. Of those whose names are preserved none appear to have held the post for more than a few years, and we do not recognise the names of any who rose to any eminence. It seems to have been a post which no one took who could get anything else. Their day's work, which to many must have seemed a monotonous routine, was soon finished. They were forbidden to do anything else; and, as they could not help in parish work or teach the young, they must have had a lot of useless time on their hands; they too frequently neglected even the little they had to do, and subsided into a mere animal life or something worse.

The Bishop of Winchester exercised a certain amount of supervision over them, but it depended very much on who happened to be Bishop whether any particular notice was taken or not. In 1347 the Bishop of Winchester (William Edendon) sent a monition to the Dean of Ewell to fine and admonish William Cooke, the then chaplain, who had abandoned the chapel so that no services were being celebrated, and allowed the chapel to get into a ruinous state, and was appropriating and wasting the income for his own purposes; but no punishment was threatened if he returned and did his duty.

In 1355 William de Hynkele, the first warden, was indicted for a felony especially disgraceful to anyone in priest's orders, but he obtained the King's pardon before trial. He resigned the wardenship the next year.

In 1372 there seems to have been a charge of peculation against Robert de Byknore, and an audit was directed by the Bishop; but we do not know the result. However, he did not resign till four years later, so he probably was able to clear himself.

The next warden, Reginald Jordan, was admonished in 1401 by the Bishop for continued neglect of duty and misappropriation of the income, and resigned in 1402. He seems to have taken the rents of the houses and land, but not to have done any repairs. Moreover, he did not pay the chaplains or furnish them with their vestments, and he was a frequenter of taverns.

It is significant that both these proceedings take place during the overseership of William of Wykeham. Whether the chaplains and wardens under his predecessors and successors did not require such close looking after, or whether the Bishops themselves did not trouble to look after them, must remain matter of opinion. That the succeeding wardens neglected their duty to the property of themselves and their neighbours is pretty clear, as there are several instances of their being fined for not keeping their ditches and sewers in proper condition.

The last warden was Charles Carew, who was said to be a son of Sir Nicholas Carew, of Beddington, one of the favourites of Henry VIII. His father had presented him to the family living, and he was also rector of Beddington at the same time as he was warden of the chapel. To the latter he must have been presented by the Bishop in whose diocese his rectory was, notwithstanding the provision in the charter that the warden should hold no other appointment. Carew was found guilty of felony and executed for it. Until quite recently it was supposed it was for some offence against the Act of the Six Articles, but it has now been discovered that he was convicted with others for robbery with violence of his own grandmother, Maude Carew. According to the narrow construction put on the law in those days, property held by a convicted felon by virtue of his office was forfeited in the same way as property in his own right; but in this instance Henry VIII. allowed the chaplain to remain, and we find him there when chantries were finally abolished in the succeeding reign. In the return he is called J. de Penham, and is no doubt the same person as John Depnam, one of the chaplains to Kerne's Chantry; if so, he too was an offender against the rule laid down by Lovekyn against pluralities. At all events, he seems to have had a had a pension in respect of both offices. Henry VIII. had sold a considerable portion of the lands, and at the final dissolution of the buildings the remaining lands in Kingston were leased to Richard Tavenor.

In 1561 Queen Elizabeth gave the building and considerable portions of the remaining land for the purpose of founding a grammar school, and she supplemented this endowment later on. The chapel was occupied as the schoolhouse for many years, and is now used as the school gymnasium.

The chapel and adjoining buildings at the time of the Queen's deed of grant consisted of the chapel itself, with two small chapels, one dedicated to St. Anne, and the other to St. Loys (St. Eloi), a large number of chambers (including the master's lodgings), kitchens, stables, dovecote, gallery, and small gardens. I cannot

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conclude this paper without expressing the great obligation I am under to Mr. J. G. Black, B.A., of the Public Record Office, for placing his copious notes on the subject at my disposal.

TOWN PLANNING OF GREATER LONDON—V.

THE fifth of the six public lectures delivered by Professor S. D. Adshead, M.A., F.R.I.B.A., on "The Town Planning of London after the War," at University College, Gower Street, was devoted to the treatment of open spaces.

In his first and second lectures (which were summarised in our issues of November 17 and December 1) Professor Adshead went somewhat fully into the factors controlling development, and showed that the most important of these was the provision of easy communication by train with the centre of London. Diagrams of suburban railway systems, both steam and electric, are conclusive in proving that railway lines and not roads exert to-day the greatest influence on the development of suburbs. Main roads are necessary, and very necessary, when a later stage in development has been reached, but there are important and flourishing suburbs—such as Mill Hill—around London to which no main road approaches. So that having regard to the future development of open country around London, it is the progress of the railways that we ought most closely to watch. Since the latter half of last century, and ever since the building of Bayswater, it is the railway director who, as dictator, has decided the destiny of Greater London.

A reference to a general map of Greater London, which outlines those areas that are to-day contiguous to good lines of communication, shows us that many unexploited green strips still penetrate to within four or five miles of the centre of London. There are such areas between the Harrow and Edgware Roads, between the Oxford Road and Harrow, between Mitcham and Kingston, and elsewhere. These rural oases await with concern the exploitations of the railway director. And it is an important question as to how, if at all, the future development of such areas should be controlled.

Many propositions have been advanced as to how the rural areas round large towns should be dealt with. There are those who hold that no town should extend beyond certain limits; that at a given period in its growth an agricultural or arable belt of open country should be left, and that further development should only take place outside that belt. Then there are those who advocate leaving open radial spaces between lines of development, widening as they extend out. Having regard to the tendency for all development to extend out along radial lines, the latter proposition would seem the most natural. But is it reasonable to limit development in so drastic and artificial a way? Is it not possible to control development by limiting it in a more natural way? Is it not possible to have suburbs that are rural retreats and not town extensions? As well as the suburbs that lie on the fringe of Urban London, cannot we have modern up-to-date suburban towns and modern-up-to-date suburban villages, with an assurance that they will never be surrounded and choked? The solution of the problem of how to deal with these extensive agricultural areas that encroach on London, and that as yet have not been exploited by railways, seems to be to provide within them selected areas for building developments and limit them in size, leaving a surround of agricultural land.

Suppose, for instance, that that unexploited area which lies to the north-west of the Welsh Harp and between the Edgware and Harrow Roads were carefully surveyed for the purpose of finding the most suitable sites for building development, or suppose that the whole of this area were included in a town planning scheme, which at present it is not. Now with a town planning scheme promoted by the local authority practically the whole area would, in the interests of the owners, no doubt be classed as a residential area, and with limitations of sixteen, twelve, eight, and four houses to the acre very little else could be done. But suppose, in the first instance, a central authority acting as town planning authority in regard to main roads, railways, and generally the allocation of areas for different purposes, were first to decide the destiny of this district, having regard to the requirements of London as a whole, leaving local development for local authorities at a later stage. They would probably decide that building development might be allowed in a limited area in the neighbourhood of Preston Road Halt and Wembley Stations; that the Golder's Green London Electric Extension to Edgware should have a loop so as to serve that elevated area below Stanmore. Suppose another area on the elevated land thereabouts were scheduled for building developments, and suppose elsewhere not more than twenty new houses were allowed to be erected in a group, and that no group was to be nearer than half a mile of another group. With some such restrictions let them hand it on to the local authority, whose local interests would do the rest.

The development of areas lying outside built-up London should be controlled in some such way as this, otherwise those beautiful stretches of country that lie contiguous to built-up London, and which are the real attractions of the best suburbs, will gradually disappear. And without such amenities the suburbs they surround will gradually depreciate and lapse into dilapidated places like Kentish Town, Paddington, Hackney, and Camberwell.

It is no new attitude of the Londoner to desire the attractions of the country. For the poet Cowper, writing at the end of the eighteenth century, says:—

> Suburban villas, highway-side retreats,
> That dread the encroachment of our growing streets,
> Tight boxes, neatly sashed and in a blaze,
> With all a July's sun's collected rays,
> Delight the citizen, who, gasping there,
> Breathes clouds of dust, and calls it country air.

In suggesting that these undeveloped lands that to-day penetrate into Greater London have restrictions placed upon them which admit of limited areas of development and sites for small groups of houses which may be described as villages, one must not have in mind the immortal village of Gray's "Elegy." No, the village which Gray describes, with its curfew bell, its ivy-mantled tower, and lowing herds wending slowly o'er the lea, has no future in Greater London; this kind of village will have to be relegated to the country beyond. The sort of village consisting of about twenty cottages or small houses, with occasionally a group of houses of a larger type, will exist more on the lines of the best type of small suburban community such as is to be seen in many outlying districts to-day, and the sort of country that would be reserved between them would be agricultural land, pretty much as we see it now, with perhaps more dairy farms and an increase in market gardens, orchards, allotments, and every kind of intensive culture.

There would, of course, be great difficulties in satisfying owners whose land was to be kept open, but much could be done in a matter of this kind by negotiation, and perhaps by compensation collected by a rate levied on all built-up areas in the vicinity of undeveloped land.

The sum total of such an arrangement would certainly be an enhanced value all round.

Probably to restrict permanently lines of railway communication and other routes of public conveyance would be found to have the same effect as limiting the building areas. And this indirect way of dealing with the difficulty might in the end prove the best.

Quite another matter is the provision around London of a chain of Nature reservations. In Epping Forest and Richmond Park London possesses unbroken areas and stretches of natural scenery of which she may be justly proud. The value of these great open spaces, each of which covers considerably over 4,000 acres, is inestimable.

They are, however, insufficiently accessible for those inhabitants who dwell in the north-west and south-east. To provide similar amenities for the people dwelling in

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these districts, there are needed similar reservations in the direction of Edgware and Eltham. The London Society in their plan suggest the acquisition of two such areas. That in the north-west would lie between Elstree and Stanmore, that in the south-east about Bexley Heath and Foot's Cray.

The land proposed to be acquired consists to-day for the most part of pasture land, and it would take very many years before it would acquire the grandeur of Richmond Park or the wild appearance of Epping Forest.

As a first step all the hedges would need to be removed, for primitive Nature is nothing without the effect of expanse. Then much of that prettiness which is so characteristic of cultivated land around London, and which is very largely due to the way in which the trees are more or less dotted along the lines of the hedges, would have to give place to the complete opening out of certain areas and to solid planting everywhere. In the London Society's plan of the Stanmore reservation there is shown a very artificial system of planting both at the entrance from the Edgware Road and also around the Elstree Reservoir. An artificially planted entrance and one or two tree-lined avenues would be desirable, but too artificial a treatment of the whole area would be a mistake.

The addition of two magnificent Nature reservations would be a great boon to London, but when we consider the wooded heights that encircle Vienna, when we consider that before many years the opportunity of having a chain of Nature reservations around London will be lost for all time, when we realise the mistakes that result from the national method of compromising and half doing things, we realise that to be satisfied with two more extensive reservations is not enough. We want a chain of reservations, and we want them connected together by parkways and delightful drives. Some such scheme as this has been proposed by the London Society as regards their outer circular roadway. As well as the reservations already mentioned, it picks up a fifth south of Croydon. Here in Addington and Crowham Hurst Park is a stretch of beautifully wooded country sloping gently to the south, and within a couple of miles of Croydon. To fill up an empty link in the chain, it appears that there is still wanted a similar reservation at the termination of the proposed Western Avenue and where it connects with the Oxford Road: somewhere between Uxbridge and Denham. It is a very beautiful district in the valley of the Colne.

The importance of leaving large natural reservations easily accessible from the heart of London for London's millions to be enabled to enjoy primitive Nature on Saturdays, Sundays, and holidays cannot be too strongly urged. Parks like Hyde Park, Regent's Park, and the numerous smaller parks with which London's built-up area is so richly endowed are of real value for those living in the immediate locality for immediate and constant recreation, but they do not satisfy the needs of the public as regards holiday picnics and holiday rambles.

But many would say that in preference to being confined to a 4,000-acre reservation they prefer a field walk of four or five miles.

That many people should love to wander through open country, where the revels of the picnic party and the toot of the motor horn is not heard, is a natural and reasonable desire. To satisfy these needs the Footpaths Preservation Society can do much, but still, in our development plan, land bordering streams like the Colne, the Brent, the Wandle, and the Roding ought to be kept open and permanently preserved.

In advocating the preservation of all these open areas in Greater London, it ought not to be a case of how little can we do with, but rather how much can we enjoy. We have to remember that recently there have been introduced enormous improvements in passenger transit, and that therefore the value of land around London is not so much less fifteen miles out than it was some years ago five miles out, and that the tendency in the future will be for it to equalise. But as we get further out it increases in area in the square of the distance, and therefore if we look at the matter from the point of view of the Londoner, instead of regarding it with the limited parochial vision which to-day seems to settle all these questions, we realise that it does not mean the loss of thousands of acres of desirable building land which the little Londoner thinks he can ill-spare.

SOUTH AFRICAN BRANCH OF THE SOCIETY OF ARCHITECTS.

In the absence of the President, Mr. S. C. Dowsett, on active service in East Africa, the Acting President, Mr. D. Ivor Lewis, presented the tenth annual report of the branch at a meeting held in Johannesburg on October 10, 1916.

The total membership is fifty-five, a decrease of four. The death of Mr. J. D. Anderson, of Durban, was a great loss to the profession, the branch, and the society.

Some 30 per cent. of the members are on active service, including the retiring President.

The financial position is sound, there being a credit balance in the bank of £130.

Owing to the war the architectural classes at the S.A. School of Mining and Technology were poorly attended, and the branch prizes were not allocated in full, but a book prize of the value of £4 10s. was awarded to Mr. W. B. T. Newham, who attained a first-class pass with distinction and first place in the examination. The branch has renewed its offer of prizes to the value of £9 10s. for the forthcoming session.

The Union of South Africa Registration Bill is not being pressed by the branch at present, but at a more opportune moment the branch will resume its active propaganda in conjunction with the other architectural bodies.

The report was adopted, as was the following financial statement to September 30, 1916:—

RECEIPTS.				EXPENDITURE.			
1915.	£	s.	d.		£	s.	d.
Oct. 1. To balance	106	15	9	By rent of board-room ...	5	5	0
Moiety of members' fees from London	42	4	10	„ prizes	4	10	0
				„ legal expenses ...	5	13	11
				„ postage and sundries ...	3	1	4
				„ balance at National Bank of South Africa... ...	130	10	4
	149	0	7		149	0	7

Examined and found correct—D. Ivor Lewis, Acting President; D. M. Burton, Honorary Treasurer; E. H. Waugh.

Clause 4 of the Branch Rules was altered to provide for three vice-presidents instead of one, subject to approval by the Home Council, which has since been given.

The following officers were elected for 1917:—President—D. M. Burton. Vice-Presidents—W. J. McWilliams, H. G. Veale. Honorary Secretary—M. J. Harris. Honorary Treasurer—D. M. Sinclair. Council—S. C. Dowsett, E. H. Waugh, D. Ivor Lewis, J. F. Beardwood. Auditor—J. S. Donaldson.

The meeting approved, subject to confirmation by the Home Council, which has since been obtained, the following resolution agreed by the branch representatives at a joint conference of architectural bodies held at Johannesburg on June 28, 1916:—

"That this meeting expresses its confidence in the Registration Committee recently appointed by the Association of Transvaal Architects, and considers that the Registration Committee appointed by the various centres constitutes the proper body to act on behalf of the united profession in South Africa."

"That this meeting affirms its sympathy with the proposal to preserve the identity of the existing South African architectural societies for local purposes, but to affiliate the said societies with a new organisation—namely, the South African Institute of Architects, to deal with broader questions."

The meeting closed with votes of thanks to the retiring officials and members of Council.

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ART IN LONDON.

BURLINGTON FINE ARTS CLUB.

AT 17 Savile Row we are always sure of seeing work of interest, though its interest is more for connoisseur and dilettante than for the general public. Yes! the latter may like sepia studies and sketches by old masters and may also like old furniture and objets d'art, but without proper appreciation of their value. But that is at last the crux of the matter — the lack of power of appreciation, whether the word be used with its derivative or acquired significance. Let us dip into the contents of this latest exhibition and note some of what it contains. And firstly, we must draw attention to the representative collection of Alexander Cozens' water-colour landscapes. Cozens, who was a son of the Czar Peter the Great and an Englishwoman, had an interesting personality and was an artist of originality and taste. These characteristics he passed on to his son John Robert, examples of whose works are also to be seen here. Of the thirty of Alexander's water-colours shown the very best are, "Mountain and Wooded Valley" (22), "Landscape with Wooded Crag" (33), and "Plain and Hills" (37). An interesting feature of the exhibition is some of J. R. Cozens' studies with more or less accurate copies of the same made by Turner, when a student; on the whole we prefer the original.

There are examples of work by Vandyck, Kneller, Reynolds, Hogarth, Gainsborough, Girtin, Romney and Rowlandson.

We are never very much impressed by Gainsborough's landscape studies, though No. 56, alternatively attributed to him and some imitator of his style, is far more interesting and artistic than we should expect of similar work of this old master; its attribution to Paul Sandby is much more reasonable. Sketch of a watermill by this architect-artist is very pretty, though lacking in sufficient variety.

Hogarth's sketches one always likes to meet with, almost in proportion as we would avoid work by Henry Fuseli.

Much more we might say about this latest exhibition, but it must suffice to draw attention to the attractive display of furniture and ornaments disposed about the gallery; examples of satinwood cabinetwork are very much in evidence. A first visit to this Club always invites subsequent visits.

DESIGN FOR MANUFACTURE.

THE Board of Education has issued the following important circulars to Local Education Authorities and Schools of Art:—

Sir,—It is probable that after the war there will be considerable activity in various manufactures which are in part dependent for their attractiveness upon the right use of form and decoration. It is obviously desirable that, as far as possible, these manufactures should be brought under artistic influences, but this is not likely to be accomplished unless those who teach Design for Manufacture in Schools of Art familiarise themselves with the considerations which govern manufacturing productions, and, without adopting commercial standards of taste, take into account the economic and other conditions which determine the practicability of giving effect to designs.

The Board's Inspectors of Schools of Art have been giving close attention to this question, both before and during the war, and are in touch with many of the leading manufacturers and distributors. On March 8, 1915, the Board issued Circular 897, which laid down some general principles for the organisation of courses in Industrial Art, for the application of suitable tests to students passing through such courses, and for the preliminary instruction of young boys and girls upon which such specialised courses should be based. A special Memorandum of Suggestions to Teachers with regard to courses in Design applied to Manufacturers has now been prepared (Form 491 T.), of which a copy is enclosed.

The question of the relation of Schools of Art to manufacture was also, before the war, under the careful consideration of the Standing Committee of Advice for Education in Art, as an important part of the general problem of State-aided training in Art. That Committee made a short report to the Board in 1913 dealing with some of the general principles of school organisation involved, which is printed as an Appendix to this Circular. The report was receiving the Board's attention when war broke out, and, in view of the great importance of all questions bearing upon the reconstruction of industry, it is thought that it can now with advantage be made public for the assistance of Local Education Authorities, as expressing views upon an admittedly difficult subject, which have commended themselves to a number of experts variously concerned from different points of view in the improvement of Education in Art.—Yours, &c.,

L. A. SELBY-BIGGE.

APPENDIX.

REPORT BY THE STANDING COMMITTEE OF ADVICE FOR EDUCATION IN ART ON STATE-AIDED TRAINING IN ART.

I. The immediate aim of the scheme of State-aided training should be to afford a sound technical training in the Arts and Applied Arts, to further their efficiency, and to promote their application to manufacture. It should aim at making the artist a better craftsman and the craftsman a better artist; it should provide for all workers in the Arts and in the Arts applied to manufacture a thorough grounding in the preliminary stages as the basis of specialised training, and should provide for all serious students who desire and are fit to receive it an organised and progressive system of instruction.

II. To attain the end thus defined will entail a considerable reorganisation of the existing system. We feel that the keynote of this reorganisation should be the substitution of co-operation for competition. The Schools of Art, while existing as individual centres of instruction, should become part of one organisation in which the individual Schools will take their appointed place and fulfil their individual functions in accordance with their capacity and resources. We do not desire to insist upon undue rigidity of standardisation, but we feel that overlapping and duplication of effort should be avoided, and this would be best effected by the establishment of a definite understanding as to the general lines on which Art Training should be given and of systematised co-operation between the Schools.

III. Further, we are impressed with the fact that, in view of the present unfavourable economic position of the Arts as a career for the student, no inducement to take them up should be offered to any but those who possess exceptional aptitude for them and the ability to profit by training in them, and we recommend that students other than those following specific Trade Courses should only be permitted to enter Schools of Art after satisfying tests, and before entering on specialised Courses should have to pass tests shewing their ability to profit by further training.

IV. It is, in our opinion, a vital element in any reorganisation that Design should be taught primarily in connection with the processes of execution. From this it follows that the teaching of Design should be mainly carried on in those centres where a well-developed trade industry and Technical School in any given manufacture are already established, or where special equipment for instruction in any given handicraft may be provided to the satisfaction of the Board, and the Curriculum of Schools which do not possess these facilities for combining Design with trade instruction should be modified accordingly. On the other hand, where these facilities exist, training in the crafts in question should be made the principal feature of the training provided. It would result from this that a School of Art would no longer be free to take up every branch of Art teaching as a matter of course. It should be required of every School of Art that it should provide an organised scheme of properly graded Courses of study which all except the most ad-

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vanced students should be expected to take. Concurrently with practice in Industrial Design, students should be given facilities to study in Museums or elsewhere ancient specimens of the manufacture for which they are making designs, or allied manufactures, and also to visit Manufactories and to study modern processes of manufacture.

V. We are of opinion that the best method by which practical effect could be given to these principles is the establishment of a number of areas of grouped Schools which should be, as far as possible, complete in themselves and should include Schools of each several grade. The grades which are suggested are:—

(i) Schools of Drawing which would provide elementary training in the Arts;

(ii) Schools of Arts and Crafts which should give instruction of a more technical or advanced type in the various branches of Art, especially in connection with the demand of local industries;

(iii) One or more provincial Colleges where all branches of Art should be taught up to a high standard of proficiency, and particularly those specialised Arts and Crafts which form staple industries in the locality and the area.

Provision should at the same time be made by scholarships and bursaries to enable students to proceed from lower to higher grade Schools.

VI. In addition to this scheme, by which the instruction in each area should centre round the central provincial College, we are of opinion that there should be in London a central School of the Fine Arts and a central School of Design and Handicraft at which Scholarships, awarded by the Board of Education and by the Local Authorities, would be tenable and entrance to which would be obtained by tests of a high standard.

VII. It should be borne in mind that the object of State-aided training in Art is to produce, not (except incidentally) Art teachers, but efficient Artists and Craftsmen, and in the selection of teachers special attention should be paid to their capacity and experience as Artists and Craftsmen as proved by their record and by their executed works.

A supplementary course of instruction should be provided to prepare artists to teach Art.

SUGGESTIONS ON COURSES IN DESIGN APPLIED TO MANUFACTURES.

(Form 491T.)

1. THE Board of Education have for some time past had under their careful consideration methods of instruction and training in Design for Industrial Art, and more especially Design suitable for reproduction by processes of manufacture.

In Circular 786, dated December 11, 1911, announcing the reorganisation of the system of examinations in Art, the provision of a new examination in Industrial Design was outlined. Examinations under the scheme thus outlined have been annually held since 1913, and the results of those examinations indicate that useful instruction has been given in various localities, more particularly on the side of industries concerned with productions of Handicraft. It appears, however, that there is need in some localities for systematic organisation of instruction in Design for Manufacture, especially in the stages leading up to that for which the Board's examination in Industrial Design is a test.

In order to make the instruction more widely effective and to bring about closer connection throughout the country between Schools of Art and the manufacturing industries upon which Art has a bearing, it is very desirable that special and properly balanced courses of instruction for the various types of workers should be provided in all schools situated in areas where such manufacturing industries exist.

After consulting certain manufacturers and other persons interested in the training of designers, draughtsmen, and other art workers in manufacturing industries, the Board offer the following suggestions, which give some general indications as to the lines on which the courses should be organised. These suggestions, however, only express the views at which the Board have arrived up to the present time, and the Board will be glad to receive criticisms or suggestions upon the points involved.

2. Special courses of instruction for designers, draughtsmen, engravers, painters, modellers, and other art workers occupied in manufacturing industries, or for students preparing to take up such occupations, should usually be planned to extend throughout a period of not less than three years, and the minimum amount of weekly instruction and practice in a course should be six hours as a general rule. Normally, such special courses would properly follow Junior Courses constituted on the lines indicated in Circular 897 dated March 8, 1915, wherever such courses have been established.

3. The subjects which appear essential for treatment in the courses of study are as follows:—

i. Drawing.
ii. Modelling.
iii. Planning of original Design.
iv. The theory of Colour.
v. Nature Study.
vi. The styles of Design both ancient and modern.
vii. Technical requirements of Manufacture.

The inclusion and treatment of these in a course will require discrimination. For example, it is not necessary that a course for terra-cotta modellers should include instruction in the theory of Colour, that one for cotton-print designers should include instruction in Modelling, or that a course for engravers should provide the same amount of time for instruction in the planning of Original Design as that properly provided for designers. Further, it seems reasonable to provide for designers a longer aggregate course than the minimum of three years, which probably may be found sufficient in the case of draughtsmen or engravers.

4. The Board attach great importance to the provision of adequate instruction in technical requirements of manufacture, though the amount of time to be given to this subject by individual students will, of course, vary in different cases. Students who are in regular employment at a manufactory will need very much less instruction in the technical requirements of manufacture than students who are not in such employment, though it is important that, after the preparatory stages of instruction have been passed, the original designs of all students should be made with full observance of the limitations imposed by the conditions of manufacturing production.

5. In the matter of Drawing it is obvious that adequate provision both for instruction and practice must be made, as without the power of Drawing effective study of the other subjects in a course will be rendered very difficult, if not impossible. It is also important that the course of training in Drawing should be such as to give precision and clearness in the definition of form. The power to make slight and vague sketches is of little value in designing for manufactures. It may also be noted that the power of Drawing will, if properly handled, be developed by instruction and practice in Nature Study and in study of the styles of Design.

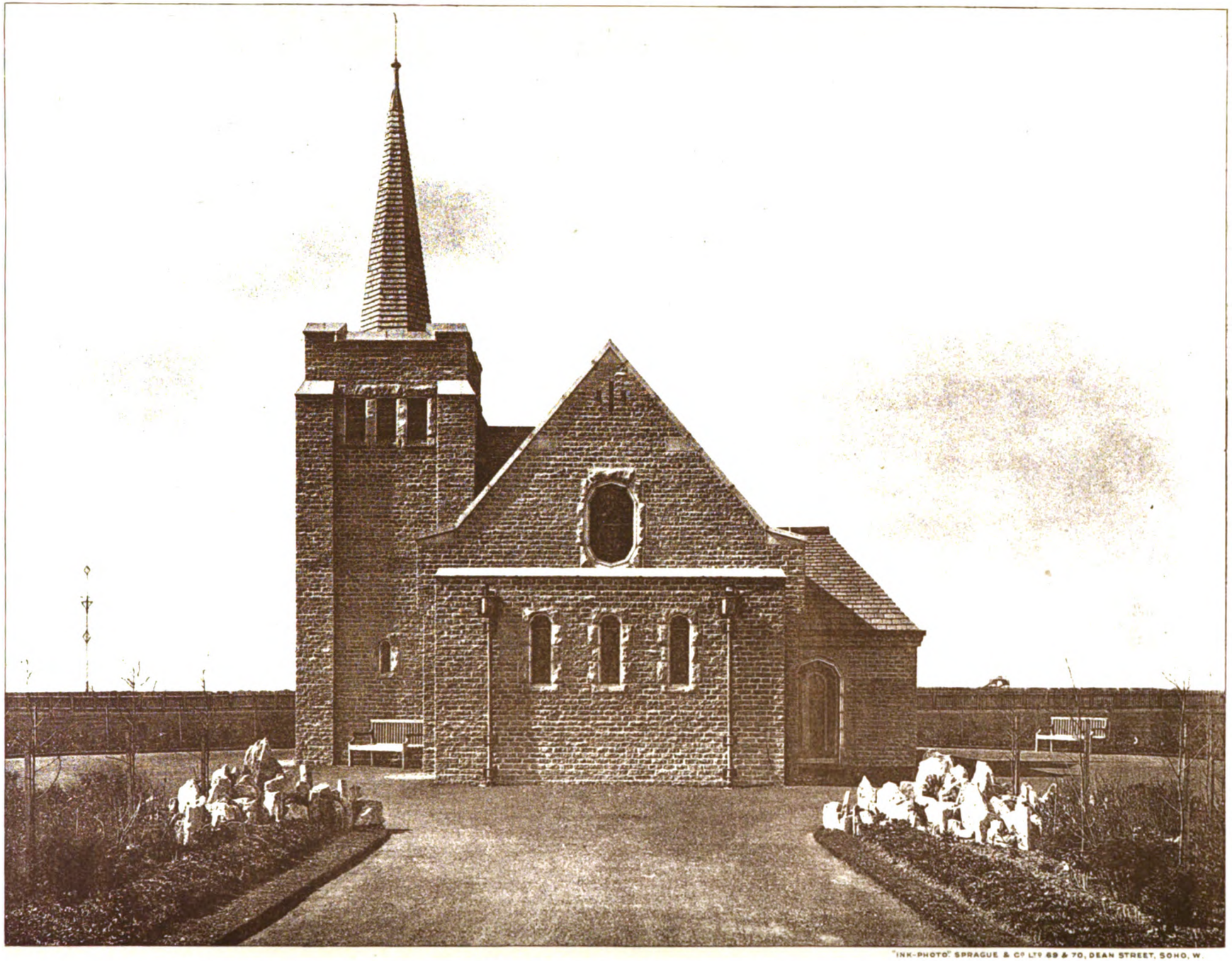
6. In the first year of a three-years' course, it would seem desirable in most cases to concentrate upon the acquisition of skill in definitely expressed Drawing or Modelling, and upon instruction and practice in simple planning of Original Design as an abstract study. In the second year the study of Drawing should, of course, be continued, and study of the most elementary conditions of manufacturing requirements might be introduced. In the third year study and practice in making original designs with full observance of manufacturing requirements might fitly form the dominant note.

7. It would seem desirable also that each course should include collective teaching by way of lectures on the principles of Design, on the styles of Design, and in cases where it is needed the theory of Colour.

Wherever it may be found possible it will be desirable to supplement the class instruction by exercises given as home work.

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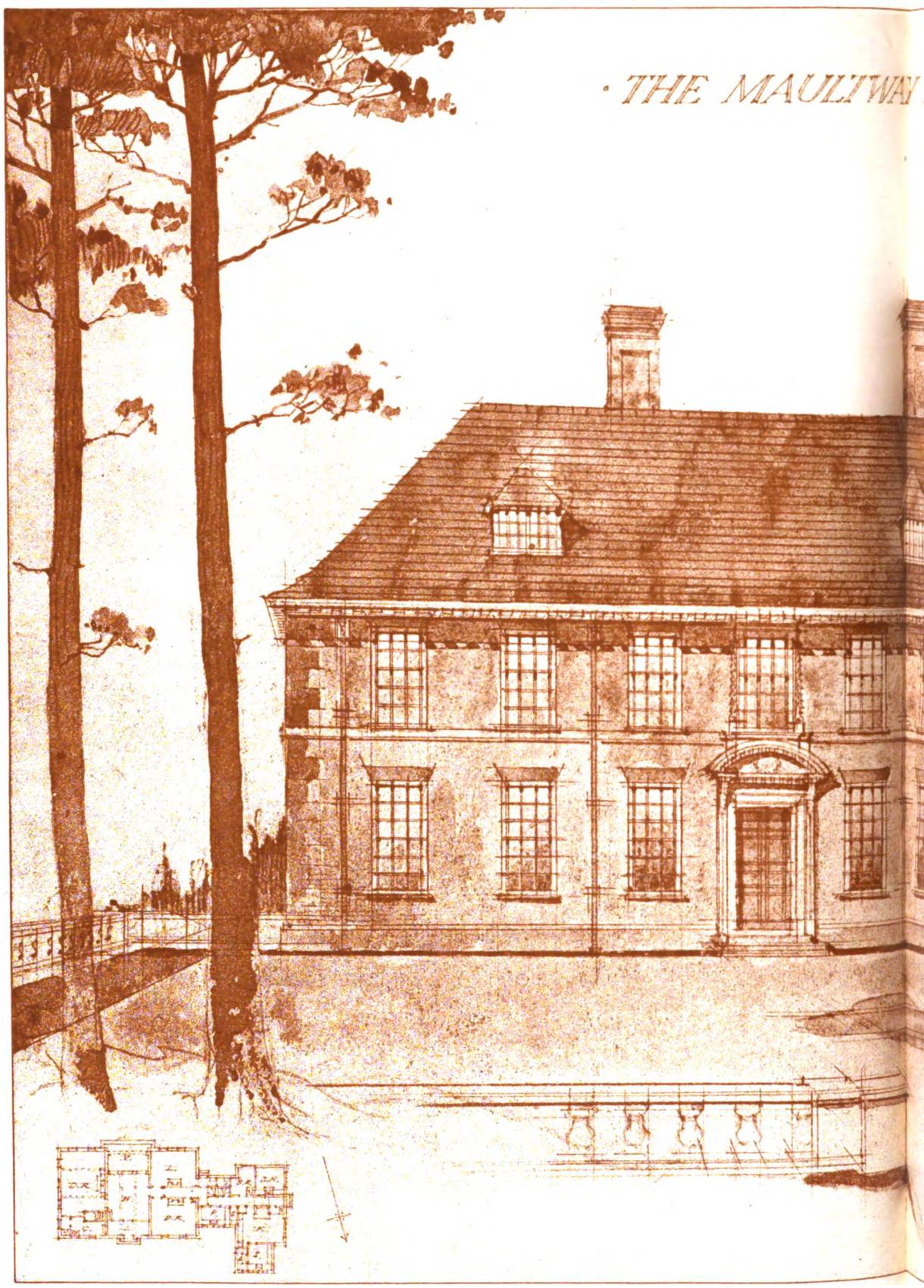


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WHITLEY AND MONKSEATON U.D.C. CEMETERY BUILDINGS. CHAPEL EXTERIOR: VIEW EAST.

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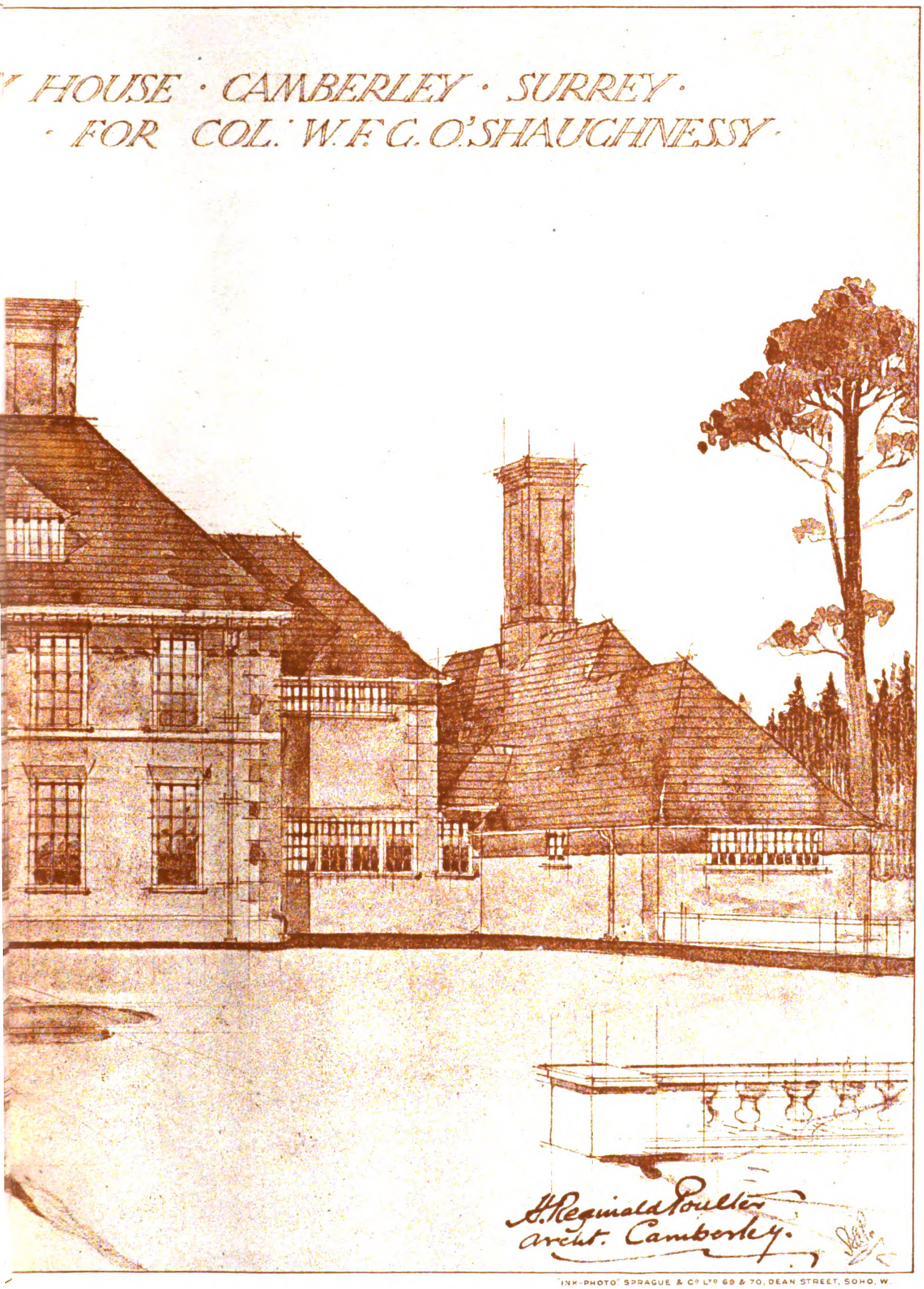
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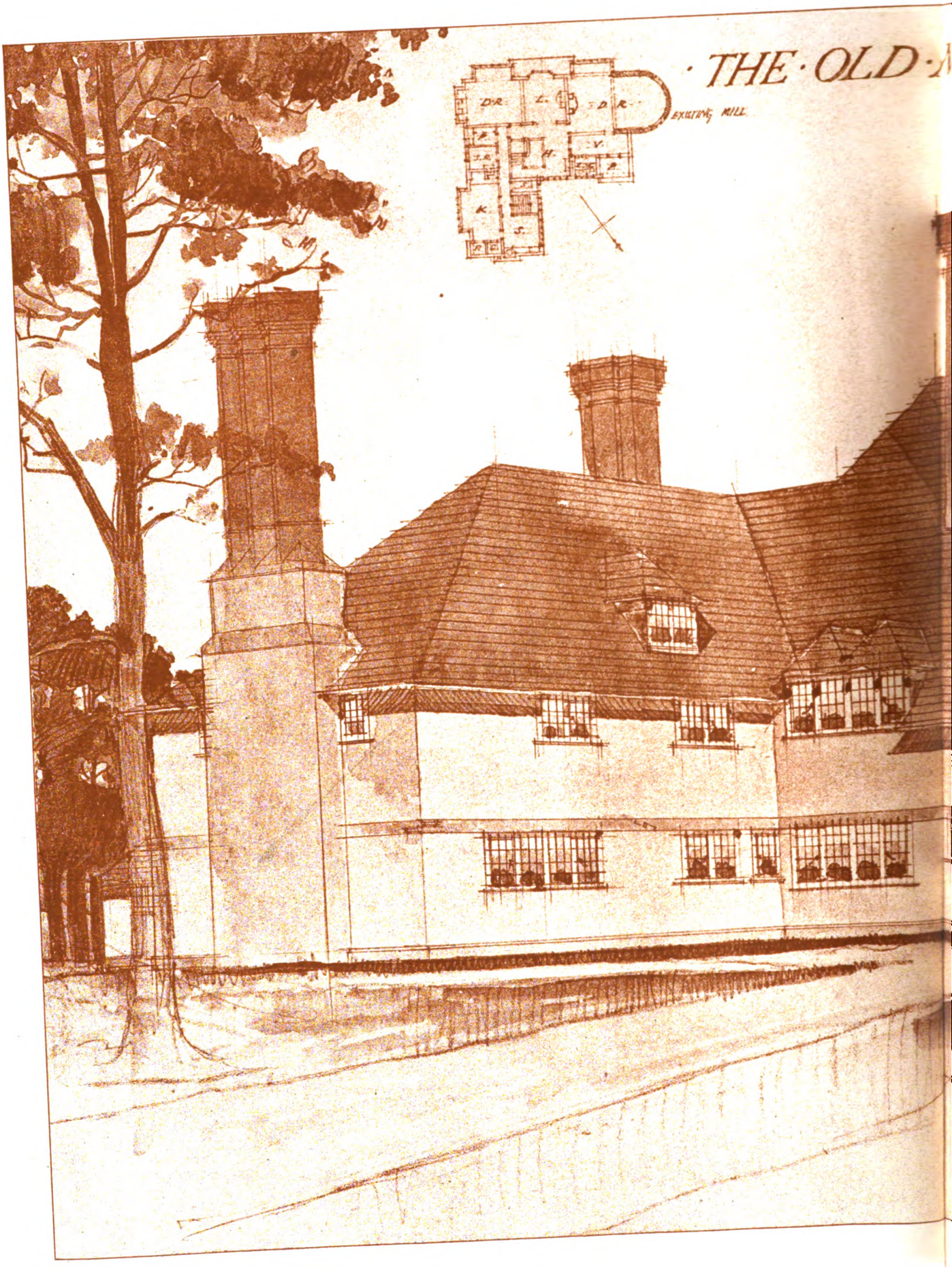


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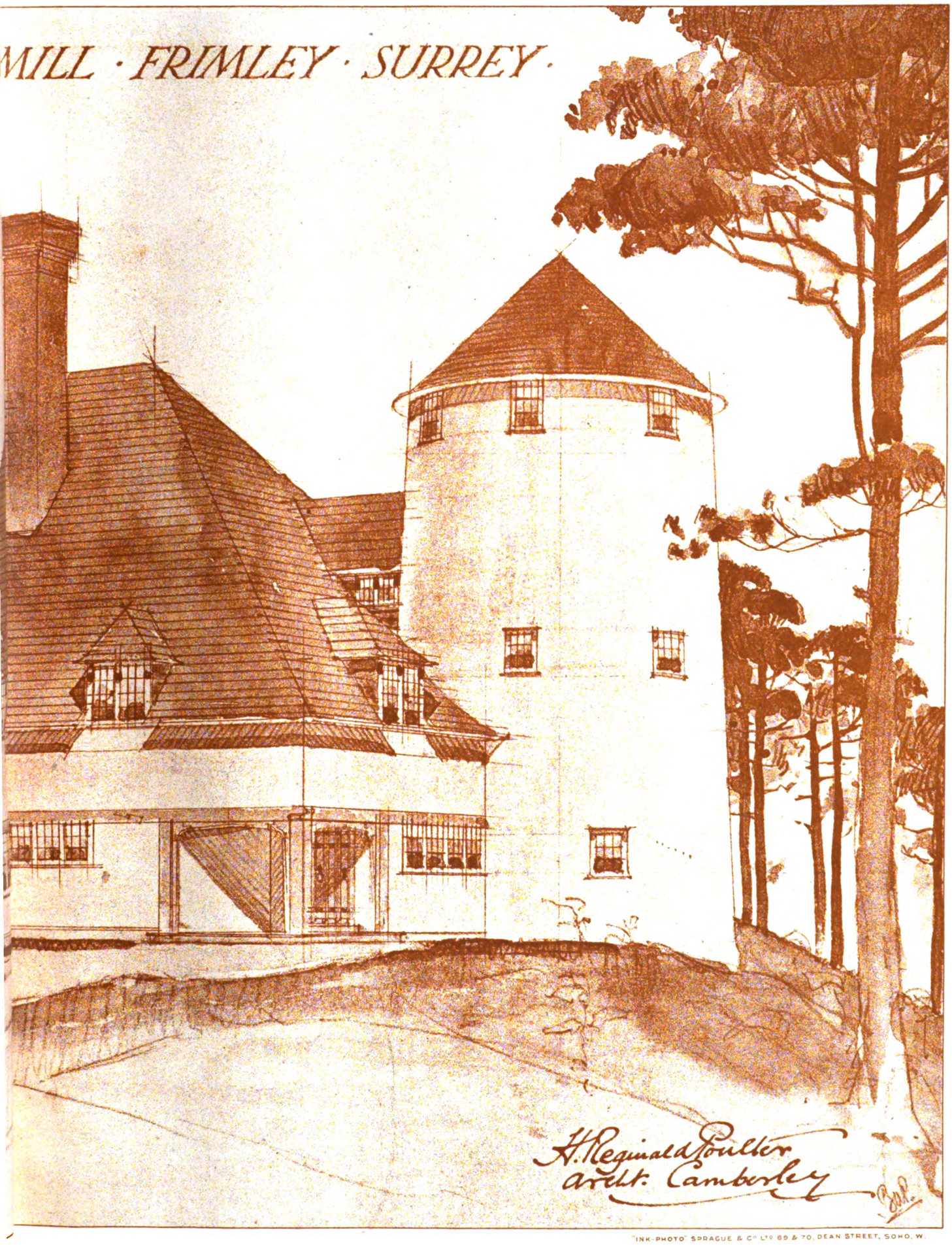
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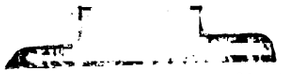


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WHITLEY AND MONKSEATON U.D.C. CEMETERY BUILDINGS. CHAPEL: EXTERIOR VIEW.

The Late Mr. EDWARD CRATNEY, F.R.I.B.A., Architect.

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8. A statement of the courses, giving full details as to types of art workers, the subjects included, and the amount of time to be given to each subject, should be submitted for the approval of the Board in the current school year and not later than the end of July 1917. If in any case difficulties in formulating the courses should be found, the Board will be glad to arrange for their Inspectors to discuss the projected courses with the Head Master of the School.

The Board do not suggest that courses should in the first instance be planned on lines which will involve substantial addition to the staff or equipment of schools. It is important, however, that effective steps should be taken to advertise the courses or otherwise bring them to the notice of manufacturers and students.

APPENDIX.

ILLUSTRATIVE SPECIMEN COURSES.

The subjects referred to in Paragraph 3 may be treated as follows in courses for Designers and Art workers, the following specimen courses being given merely to suggest a general mode of treatment, which may, of course, vary greatly in detail in different industries and different Schools. They are such as may be found suitable for a minimum course of six hours weekly.

COURSE FOR WALL-PAPER DESIGNERS.

First Year.

Drawing	3 hours.
Nature Study	1 hour.
Planning of abstract Original Design	2 hours.

Instruction in Drawing in the first year may cover Drawing of Ornament, Geometrical Drawing and its application to the setting out of pattern, and some elementary Drawing from flowers and plants.

Lessons in Nature Study should deal mainly with the study of simple shells, insects, flowers, and plants from the point of view of their structural characteristics and decorative adaptability.

Instruction in Drawing in the first year may cover Drawing systematic instruction combined with practice in arranging or composing simple forms, beginning with the simplest elements of geometric pattern and going on by degrees to more complex arrangements of the same elements and to compositions of simple ornamental and floral details for all-over repeating patterns, spaces, and borders, without any consideration of the requirements of manufacture.

Second Year.

Drawing from flowers and plants	2 hours.
Styles of Design	1 hour.
Technical requirements of Manufacture and theory of Colour	1 hour.
Planning of Original Design for Wall-papers	2 hours.

In the second year the practice of Drawing will be continued in the study of Styles of Design as well as in the Drawing of flowers and plants.

Lessons on the technical requirements of Manufacture and the theory of Colour may be given in alternate weeks or in different periods of the school year as may be convenient. The necessary principles of the theory of Colour can be properly dealt with in a short course of lectures.

Instruction in the Styles of Design should include analysis of the styles both as to pattern structure and colour treatment.

Instruction in the Planning of Original Design for Wall-papers will deal with the elementary requirements of manufacture, and it is important that, in addition to the special study of technical requirements, their application to the Planning of Original Design should also be taught together with the Planning of Original Design. The elements forming the patterns designed should be simple, and the geometric and other simple units treated as abstract forms in the first year may usefully be dealt with in their application as elements of pattern to borders, friezes, and all-over repeating patterns for wall-papers.

Students who from regular employment in a manufactory are familiar with technical requirements may devote more time to the Planning of Original Design.

Third Year.

Drawing plants, flowers, and birds	1 hour.
Nature Study and Styles of Design	1 hour.
Planning of Original Design for Wall-papers and technical requirements of Manufacture	4 hours.

In the third year instruction and practice in Drawing from Nature will be continued, and Nature Study should mainly be the consideration of colour in natural objects as related to decorative treatment. The Styles of Design and Nature Study in this year may be taken in alternate weeks.

Instruction in the Styles of Design should be extended to cover styles of the present time.

In the third year it will not be necessary to give separate lessons or lectures on the technical requirements of Manufacture. Instruction in this subject should be combined with that in its application to the Planning of Original Design, and practice in planning designs should be carried out with full observance of technical requirements of Manufacture.

Fourth Year.

Drawing from Nature	2 hours.
Planning of Original Design and technical requirements of Manufacture	4 hours.

In the fourth year instruction in Drawing from Nature will deal with more difficult subjects than those of the third year, and in some instances may include drawing the human figure.

Instruction in the Planning of Original Design will cover difficult problems in designing for wall-papers.

In carrying out the course the great aims to be kept in mind are the attainment of the power of clear, precise, and correct drawing, also facility and originality in the planning or composition of decorative units, whether geometrical, floral, animal, or ornamental in schemes of original design.

Note.—In cases where more than the minimum of six hours is given, half of the additional time should, as a rule, be allotted to Planning of Original Design, and the greater part of the remainder to Drawing.

COURSE FOR WALL-PAPER ROLLER-ENGRAVERS, AND BLOCK AND ROLLER CUTTERS.

First Year.

Drawing	3 hours.
Technical requirements of Manufacture	1 hour.
Planning of Original Design	2 hours.

Instruction in Drawing and the Planning of Original Design may be the same as in the first year of the course for Wall-paper Designers.

Instruction in the technical requirements of Manufacture should cover the conditions of simple metal work and engraving of copper and brass.

Second Year.

Drawing	2 hours.
Technical requirements of Manufacture	2 hours.
Styles of Design	1 hour.
Planning of Original Design for Wall-papers	1 hour.

In the second year instruction in Drawing should include plants and flowers from Nature as well as from examples of well-known styles of Design.

Instruction in the technical requirements of Manufacture should comprise instruction in the dissection of designs, the mounting of metal outlines on a roller or block, engraving, stippling, &c., on copper or brass, which will involve some practical work in material.

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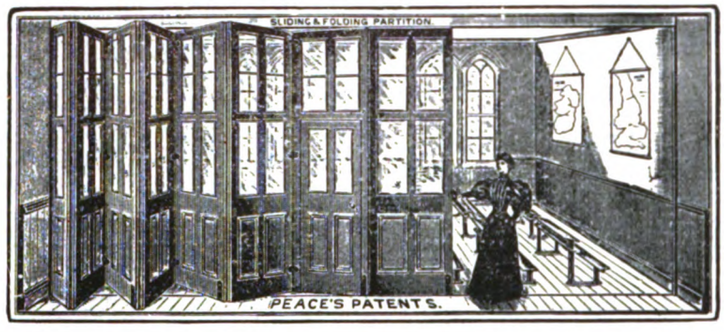
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Instruction in the Planning of Original Design in the second year should cover the making of simple designs for wall-papers with full observance of the technical requirements of Manufacture.

Third Year.

Drawing	2 hours.
Styles of Design	1 hour.
Technical requirements of Manufacture	2 hours.
Original Design for Wall-papers	1 hour.

In the third year instruction in Drawing should include studies from examples of heraldry as well as from plants and birds.

Instruction in the technical requirements of Manufacture may include instruction in the preparation of a set of rollers, blocks or plates, or a set of wooden blocks, as well as testing for registration, &c., and will involve some practical work in material.

Instruction in Original Design for Wall-papers should be concerned with more difficult arrangements of pattern than those of the second year, and the designs will, of course, be planned with full observance of the technical requirements of Manufacture.

Note.—In cases where more than the minimum six hours is given, the greater part of the additional time should, as a rule, be allotted to Drawing.

Correspondence

[The Editor will not be responsible for the opinions expressed by Correspondents.]

On Curves.

SIR,—When I was staying near the famous castle of Warkworth, in Northumberland, I visited some rocks which rose out of the Coquet at about one mile up the river from the castle. These rocks had flat spirals (in one plane) incised upon the face of the rock at about a height of 10 feet from the surface of the water. The diameter of the complete spiral would be about 8 inches. They were very weatherbeaten and unnoticeable except to an investigator in a boat. I was taken to these by the local correspondent of a Northumbrian newspaper, who was very interested in the antiquities of the neighbourhood. In the house where I was staying was Tomlinson's "Guide to Northumberland," and I found there a reference to these spirals on the cliffs of the river Coquet.

According to the author, these were carved by the ancient Britons, and he adduced the same theory as Sir Theodore Cook—namely, that these curves represented the origin of life. The author gave rather a lengthy theory on spiral curves, and amongst other things stated that the ancient Britons practised lewd dances before stones similarly marked. These dances were a devoutly religious ceremony.

The numerous readers of this paper who live in Northumberland, and who have access to Tomlinson's Guide, will, I am sure, be interested if they turn up this account. It certainly confirms some of your statements in the criticism of Sir Theodore Cook's book, "The Curves of Life."—Yours, &c., J. H. KERNER-GREENWOOD.

The Jubilee of a Great Enterprise.

SIR,—Yesterday was the fiftieth anniversary of the founding of the Artisans', Labourers', and General Dwellings Co., Ltd., which began its career with a nominal capital of £250,000. This is now increased to £3,250,000, of which £2,939,230 is paid up. Among its first officers were prominent public men of the time, including Lord Shaftesbury, Dean Stanley, and Mr. Jacob Bright, M.P. Its first decade was a time of stress for the shareholders. Troublesome experiences are often associated with the period of youth, and such was the case with the early years of this company; but happily it surmounted its difficulties, and to-day it owns 250 acres of freehold estates in the Metropolis, and provides no fewer than 8,682 dwellings and shops, accommodating more than 35,000 people.

In 1878, the time of the Company's adolescence, the late Mr. Evelyn Ashley, M.P., was elected Chairman of the board of directors. He was succeeded by Mr. Ernest Noel, M.P. for Dumfries from 1874 to 1886. Mr. Noel, in health and vigour, is still the Chairman, and is a regular attendant at the weekly meetings.

The work of the Company is truly benevolent, for it benefits alike those who occupy the buildings and those who provide them. The cottages are only empty during the periods of repair or change of tenancy, and the shareholders for the past thirty-eight years have always received a dividend of not less than 4 per cent. per annum.—Yours, &c., MARK H. JUDGE.

7 Pall Mall, S.W.,
January 1, 1917.

BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

ENGLAND.

CORNWALL.

Truro (near).—Proposed smallpox hospital, Pennace Point, for the Truro and Falmouth Port Sanitary Authority.

DURHAM.

Silksworth.—Proposed Sunday school.

Sunderland.—Proposed military hospital for 520 beds (£30,000).

ESSEX.

West Ham.—No. 39 Ash Road, Stratford: additions for the Hovis Co.

Premises, Carpenter's Road, Stratford: additions for the Excel Co.

Premises, Martin Street, Stratford: additions for Messrs. Younger.

KENT.

Faversham.—House, London Road: additions for Mr. G. Hodges.

Maidstone.—Springfield Mill: workshop.

LANCASHIRE.

Burnley.—Ironworks, Queen Street: rebuilding.

The Grove Ironworks, Trafalgar Street: rebuilding.

NOTTINGHAMSHIRE.

Worksop.—Stores, off Carlton Road, for the Asiatic Petroleum Co., Ltd.

STAFFORDSHIRE.

Tamworth.—Motor garage, for the Co-operative Society.

SUSSEX.

Hove.—Garages and offices, Conway Street: additions and alterations for Messrs. Tilling, Ltd.

WARWICKSHIRE.

Coventry.—Works: extensions for the Coventry Chain Co., Ltd.

Works: extensions for the M. L. Magneto Syndicate, Ltd.

Works: extensions for the Sterling Metals, Ltd.

YORKSHIRE.

Holmfield (near Halifax).—St. Andrew's Mission Church: Sunday school (£2,000).

Huddersfield.—Workmen's houses for the Corporation.

Leeds.—Proposed extensions to hospital, Becket's Park.

WALES.

Swansea.—No. 6 Hopkin Street, Brynhyfryd: additions for Mr. Clarke.

No. 22 Bennett Street, Landore: additions for Mr. R. Gregory.

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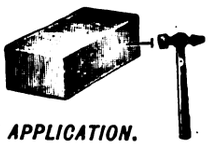
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THE ARCHITECT

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FORTHCOMING EVENTS.

Tuesday, January 16.

Illuminating Engineering Society: Discussion on "The Lumen" as a Measure of Illuminating Power, to be opened by Professor J. T. Morris, at the House of the Royal Society of Arts, at 5 P.M.

Thursday, January 18.

London School of Economics: Public Lecture entitled "The Organisation of Trades," by Mr. Ernest J. P. Benn, at 5 P.M.

Friday, January 19.

Egypt Exploration Fund: Paper entitled "The Cult of the Dead," by Mr. A. M. Blackman, M.A., at the Rooms of the Royal Society, Burlington House, at 4.30 P.M.

Thursday, January 25.

Concrete Institute: Paper entitled "The Care of Ancient Monuments," by Mr. C. R. Peers, F.S.A., at 5.30 P.M.

THE STATE AND HOUSING.

WHILST it is difficult to predicate with any degree of certainty or, indeed, even with reasonable probability, what will be the conditions of labour after the war, certainly during what is termed the period of reconstruction, it may be taken as a postulate that there will be a class of the poorest workers whose wages will be insufficient to enable them to pay an economic rent for housing accommodation of the standard which we have become accustomed to regard as the minimum required to maintain the worker in health and efficiency.

As it is obviously to the advantage of the State that every worker in the community should be able to perform his allotted task in complete health and efficiency it immediately follows that the commonweal imposes upon the State the duty of ensuring that every worker shall be properly housed. If his wages will not permit of his paying an economic rent for proper housing, then the State must provide his home at such a rent as he can afford to pay. This is not Socialism but wise Statecraft, for the community as a whole benefits by the efficiency of every individual. We have recognised this in our educational system—quite apart from any question of the efficacy of the system we have adopted—and also in our sanitary legislation and organisation. It is quite as important for the health and efficiency of the worker that he should have a decent home over his head as that he should have a sufficient supply of pure water and proper drains and sewers.

The first step for the State, in our opinion, is a careful and searching examination of our existing building by-laws and regulations. There is more than a presumption of doubt that the enthusiasm of our hygienic reformers has resulted in the adoption of a standard that exceeds by more than a little the absolutely essential requirements for health and even comfort. Is it impossible, for example, for a town worker to live healthily in a room less than 9 feet high? Are brick and stone walls imperatively necessary, or cannot a country worker keep well in a house built of wood, and is it of vital consequence that his floor joists and his roof rafters should be of the scantlings ordinarily prescribed? There can be no question that one of the factors of the housing problem, the cost of building, could be divested of much of its potency by a reasonable reduction of the stringency of legislative enactments for building.

While, on the one hand, there is an opportunity for reduction of cost in the actual erection of the house, there is room for careful consideration as to whether wise Statecraft, directed towards the health and efficiency of the worker, does not demand expenditure in the provision of amenities. We would ask our readers to compare two notable modern housing schemes: the Government scheme for Woolwich Arsenal workers at Well Hall Road, Eltham, Kent, and Port Sunlight, founded by Sir William Hesketh Lever, Bart., for the workpeople of the Sunlight soap factories.

In the former we have an estate of ninety-six acres, containing 1,298 residences in houses or flats, there being 212 of the latter. But in this scheme for the accommodation of between 6,000 and 7,000 people there is nothing but residences. No church or chapel, school, hall, or other provision for the full life of a community larger than many a country town. True the residences are well planned, well built, pleasant to look upon, and admirably disposed. The fault, therefore, is obviously not that of the architect (H.M. Office of Works), but of those who gave him his instructions.

As a contrast to this we have the town of Port Sunlight which, although it may ultimately accommodate a population of about 10,000 on its 222 acres, at present has only slightly over 1,000 houses. Yet for the well-being and comfort of the inhabitants there are already a church, schools for 1,600 children, a lyceum, a cottage hospital, a gymnasium, an open-air swimming bath, a post office, a village inn, village stores, a fire station, an auditorium to seat 3,000, the collegium, the Gladstone Hall, the Hulme Hall, Co-partners' Club, with billiard-rooms and bowling green, a village fountain, and the Hulme Art Gallery and public library.

Of course it may be urged, and with a certain amount of reason, that the Government's scheme is an emergency measure, to meet an exceptional war-time need, that its only object is to provide shelter for an enormous accession of strenuous war-time workers, whose whole available energy is absorbed in the making of war material, so that they have neither time nor inclination for either intellectual or physical recreation other than absolutely necessary rest between shifts.

We make the comparison, however, between the Well Hall Estate and Port Sunlight with the intention of emphasising the fact that housing does not consist alone in the provision of shelter, however well effected, but should embrace an endeavour to meet all the practical and social needs of everyday life as is expressed in the various public buildings of Port Sunlight.

As explained by Sir William Lever, Port Sunlight is an application of the principle of prosperity-sharing, with recognition of the idea that such sharing is beneficial both to employer and employed, and in its operation contributes to the enhanced mutual prosperity of both. Now, as the primary reason for the State's participation in the housing of the workers is, or should be, the increased prosperity of the community by the advancement of the health and efficiency of the individual worker, it is clear that State housing should include not only shelter but adequate provision for all intellectual, physical, and social agencies that may promote the well-being and comfort of the worker. Hence not Well Hall but Port Sunlight should be the model on which State schemes or State-assisted schemes should be based; not, possibly, on the same lavish and luxurious scale as Port Sunlight, until the general prosperity of the nation is on a par with that of the Sunlight soap business.

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An excellent conspectus of what Port Sunlight has become is furnished by a monograph* prepared by Mr. Raffles Davison and recently published by B. T. Batsford, Ltd. Herein will be found admirably illustrated, by photographs and drawings, the foremost English example of idealistic town-planning.

There is another lesson in Statecraft which may, we think, be learnt from the management of Port Sunlight. In making the town, or village, what it is, more than half a million pounds of capital has been left out of count for interest in fixing the rents that the inhabitants pay. It would, presumably, have been possible for the business to pay its employees such wages as would have enabled them to pay economic rents for the intellectual, physical, and social advantages that they enjoy, and some have advocated that economic rents might be obtained from even the poorest class of workers by a compulsory minimum wage. But the management of Port Sunlight have taken what we hold to be a wiser view. There would be great difficulty in ensuring that the workers would pay the higher rents, even though, in the best sense, they received full benefit for them. They might elect to live on a lower scale and spend their money, say, on whippet-racing.

True Statecraft, we advance, lies in providing the worker with good housing combined with the fullest amenities of social life at rents that are not economic rather than in a fictitiously enhanced scale of wages. Again, we may quote our educational system as an application of this principle. The State does not enforce compulsory education with payment of its cost and a raising of wages to meet that cost. It gives the education free to all who cannot or who are even merely unwilling to pay.

So with housing, the State should enable every worker to live in such surroundings, intellectual, physical, and social, as will ensure, so far as these are operative, the happiness, well-being, and comfort that are essential to full efficiency, and the economic rental should be sought, not in the number of shillings paid weekly, but in the increased benefit to the community that such efficiency will promote.

In short, every State or State-aided scheme of housing should have for its model Port Sunlight, and not Well Hall.

NOTES AND COMMENTS.

WE are pleased to note that amongst the industries for the prosecution of which Mr. Neville Chamberlain, Director of National Service, is mobilising the national volunteer army of labour is included the building trade. Whilst the most obvious directions in which increased facilities for building are needed are those of war material factories and housing, the wholesale commandeering of hotels, clubs, and suchlike large buildings for accommodation of war service Governmental staffs shows that the late Government were mistaken in their restriction of building in the wholesale manner they adopted. Many more office buildings would now be available for the Government in London and other large cities if it had not been for the restriction of building. The commandeering of hotels is but robbing Peter to pay Paul, for hotels are part of the housing accommodation of the country, and their diversion to office use but aggravates the prevalent housing shortage. This is not only serious in respect of cottages and tenements for the weekly wage earner, but is becoming acute for those at the other end of the social scale. We cannot hugely increase the number of workers in war service, whether operative or administrative, without building accommodation for them. Hence, if the work is to be done, the restrictions on building must be relaxed and the building trade resume its position as one of the great productive industries of the country.

American cities, not being dominated by the fear of Zeppelins, are developing what is known as "flood lighting," or the projection of artificial light at night on to prominent buildings, spaces, or advertisements. The effect upon the architecture is peculiar, as the light is necessarily projected from a lower level and so entirely reverses the light and shade disposition by the substitution of footlights for sunlight. Cornices in flood-lighted buildings do not throw their wonted shadows downward but upward, and have their under surfaces in high light instead of in shade.

The war has affected the building outlook in America as not only in this country but practically throughout the civilised world. So large a proportion of the world's labour and material is absorbed in the destructive production for war that even in neutral countries, as the United States, a real shortage exists of both materials and workmen; and, consequently, prices have mounted and, in the opinion of those well qualified to judge, show a tendency to still further advance.

Mr. Gordon Allen, F.R.I.B.A., writes to the "Times" calling attention to the increasingly urgent need for revision of existing building by-laws. This, as we have already pointed out in "The Architect," if effected in a commonsense manner, would remove one of the deterrent factors that at present operate to prevent private enterprise from providing the housing accommodation now so disastrously deficient. We hope that many of our readers will assist in keeping this reform before the public in the columns of the daily and weekly popular Press.

Reconstruction work has already commenced in the war-devastated area of France. At Vitrimont, in Lorraine, for example, the restoration of the village is proceeding with the financial support of two American ladies. The French Government will hereafter, it appears, pay over as an indemnity 60 per cent. of the cost, and the balance will be a present to the village from its benefactors.

Remarks made by the Chairman of the Public Works Committee, at the last meeting of the Birmingham City Council, urging greater control over street architecture by the Corporation authorities, have raised considerable interest. But it has been rightly pointed out that an ordinary Corporation Committee is hardly to be regarded as a fitting censor of the aesthetics of street architecture, and it is suggested that for Birmingham, the services of the Birmingham Architectural Association should be sought as an advisory body. The official control of the design of street architecture is by no means an easy problem to solve. The London County Council has attempted it, and Kingsway is the result. A collection of samples, some of them excellent, some of them otherwise. And yet here was a virgin field of a fine thoroughfare which might have been expected to afford an opportunity for a model piece of civic design. The crux of the matter is that you cannot get a number of individual owners, whether tenants or freeholders, to build in unison. They each think that their own peculiar requirements demand absolute freedom from restriction in respect of the treatment of their particular façades. Still there is undoubtedly room in Birmingham for a restraining hand even if it achieves no greater success than the erection of respectable samples. But a Corporation Committee is not the desirable censor. As a correspondent of the "Birmingham Daily Post" says, "In the past the Public Works Committee have been the worst of sinners. I will mention only one example, but if necessary I could give a score. One of the most interesting pieces of classic architecture in Birmingham is the

* "Port Sunlight." A Record of its Artistic and Pictorial Aspect. By T. Raffles Davison, Hon. A.R.I.B.A. (London: B. T. Batsford, Ltd. 5s. net.)

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Market Hall, monumental, simple, and dignified. The front facing the Bull Ring is as it was left by the architect, excepting that an adjoining tradesman has been permitted to fasten an iron bar to the strong iron railings at the side of the entrance for the display of some rather gaudy designs in hearth rugs.

"But anyone who desires to see what the Public Works Committee has allowed to be done to a noble public building I would suggest should make a careful study of the Worcester Street end of the hall. The simple rectangular steps which formed an adequate base for the strongly marked lines of the portico have been demolished, and a curly line introduced in a style entirely out of harmony with the original design. The portico has been further disfigured by placing the entrance to a public convenience on either side, and incidentally cutting away portions of the bases of the dignified Doric columns and plastering a portion of the surface with white glazed bricks. Cast-iron pent houses of indiscriminate design have been stuck on wherever a tradesman wanted them, and in contemptuous disdain of the general lines of the architecture; and, latest ignominy of all, the heavy stone blocking course over the entablature has been vulgarised by the addition of an illuminated sign."

The annual report of the Borough Surveyor for Barnsley echoes the general aspect of the housing shortage. In the last year only seven dwelling-houses were erected and certified for occupation in Barnsley. A number of old cottages were condemned as unfit for human habitation, and some demolition orders were made.

The number of cottages erected during 1916 was less than for the preceding twenty-five years.

"In order to make up for the decreased number of cottages erected," adds the Borough Surveyor, "I estimate that during the current year (1917) there ought to be provided 560 to 600 cottages, in order to equal the average rate of cottage building during the last ten years."

Sheffield naturally has maintained a good output of building during each of the two past years of over £700,000—including two picture palaces! but in spite of temporary wooden hutments for a population of 6,800, the scarcity of houses is keenly felt. With regard to the Wincobank houses, of the total of 261 which are in the hands of the Master Builders' Association, 181 have been built, and of the 67 houses for the erection of which Mr. A. Waddington is responsible, 54 have been finished. During the year plans for the erection of 332 houses have been approved, 261 of these being for the Corporation. The average cost of erecting dwelling-houses now is £300, and on this basis an expenditure for the year on the building of houses of something like £99,600 is shown.

MR. LUCIUS O'CALLAGHAN, F.R.I.A.I., of Dublin, has been appointed by the Lord Lieutenant as Governor and Guardian of the National Gallery of Ireland for a term of five years.

MR. W. ROLAND HOWELL, F.R.I.B.A., of Reading, has lost two sons at the Front—both of whom were preparing to follow their father's profession. In October 1915 his eldest son, Second-Lieutenant Roland Basil Howell, of the Northumberland Fusiliers, was reported "wounded and missing," after leading a bombing party. Nothing has since been heard of him, and any hopes of his being alive hang on the very slenderest thread. Last month the War Office wrote saying that they were now forced to believe he was killed. Mr. Howell's second son, Second-Lieutenant Norman A. Howell, King's Shropshire Light Infantry, was killed in action on December 23. Born at Reading in April 1897, he was educated at Reading School and St. Laurence College, Ramsgate, and had been about a year in his father's office before joining the Army in November 1915. He went to the front at the end of June last, and had been in the thick of the Somme fighting for six months. Lieutenant Norman Howell came home on his first leave on December 6, and returned on the 16th. Within a week he had made the great sacrifice.

ILLUSTRATIONS.

THE PICTURE HOUSE, PORTSMOUTH.

THE theatre has been erected for the Provincial Cinematograph Theatres, Ltd., upon a site in Commercial Road. The position is the most central in Portsmouth, within half a minute of the Central Station, and with service of electric cars passing the door.

The building has been erected by Messrs. Frank Corke, of Portsmouth and Southsea, from designs of Messrs. Naylor & Sale, FF.R.I.B.A., of Derby. The front elevation was designed to harmonise with the general style of the buildings by which it is surrounded. It is carried out in white faience.

The vestibule is carried out in "Marmo" work and marble. To the right and left are lobbies arranged to cut out light and draught, through which the theatre is reached, a cloak room being situated in the right-hand lobby.

The seating of the theatre is arranged in three blocks, and the floor is sloped. The design and decoration of the interior are in the Georgian style. The proscenium end is a fine example of the modeller's art, and the painted panels depicting naval history are the work of a well-known mural artist. The side walls are panelled in oak and hung with tapestry.

The large balcony is reached by the staircase at right of vestibule. The floor rises in tiers. A side balcony extends the full length, and exits are placed at either end. Ample space is provided for a promenade and lounge. The general seating and furnishing is of the special design prepared for the Provincial Cinematograph Theatres, Ltd.

To avoid the discomfort usually associated with cinematograph theatres, special attention has been paid to ventilation, the air being renewed fourteen times per hour without draught. The air is filtered from impurities, heated or cooled as required, distributed evenly through all parts of the theatre and lounges, and finally extracted. The whole of the system, which is a modification of the "Plenum," has been designed by the company's engineering department. In the event of fog, special filters are used which maintain a clear atmosphere.

A vacuum plant has been permanently installed, and this will ensure a complete daily cleansing of the theatre.

The projecting-room is spacious, well ventilated, and absolutely fireproof. The latest improvements in the machinery used make it impossible for any fire to occur.

The programme items are indicated by number signs at the side of the screen and in the entrance hall. The correct time is ensured by electrically synchronised clocks in various parts of the building.

For the convenience of patrons shopping, parcels may be addressed to the theatre to await their arrival or departure, free of charge.

Both the post office and the municipal telephone service are connected to the building, and may be used by patrons at a small charge.

Lavatories are provided on the balcony and on the first floor. These are fitted up with all toilet requisites, a plentiful supply of hot water, and are for the free use of patrons.

OAK CHANCEL SCREEN FOR FALFIELD CHURCH, GLOUCESTERSHIRE.

THIS screen has been erected by Madeline Lady Jenkinson, in memory of her late husband, Sir George Jenkinson, Bart., of Eastwood. The work has been executed by Messrs. R. L. Boulton & Sons, of Cheltenham, from the designs of Mr. F. Bligh Bond, F.R.I.B.A., architect. The design is an early sixteenth century type, of which a few original specimens remain in England. In this case the detail of the tracery follows very closely the model of the beautiful work in the rood-screen of Brushford, near Lapford, in Devon.

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NURSE CAVELL MEMORIAL.



THE Dean of Peterborough recently unveiled and dedicated an Irish blue marble memorial in Peterborough Minster to the memory of Nurse Cavell. It is "bent on" one of the south aisle pillars near the Canons' Door, facing Laurel Court School. The inscription above recalls the circumstances of the memorial. For a short time in her early life, Nurse Cavell was a pupil with Miss Gibson, of Laurel Court, Minster Precincts, and it was on Miss Gibson's initiative a fund was organised among the old pupils, teachers, and friends of the school to perpetuate the deceased's memory. Mr. Temple Moore, F.R.I.B.A., designed the memorial, the work being carried out by Messrs. John Thompson & Son, the sculptured head of the nurse being executed by Mr. T. Phillips, Herts House, Huntly Grove, Peterborough. The above sketch is by a staff artist, Mr. Arthur Bowring, of the "Peterborough Advertiser," through whose courtesy we are enabled to reproduce it. The Dean, in unveiling the memorial, said, "I dedicate this memorial tablet with the earnest hope and with a fervent prayer that the example of Edith Louisa Cavell, in her life and in her death, may be a continuing inspiration to all that is noble in womanhood, and to all that is Christian and chivalrous in man."

THE SOCIETY OF ARCHITECTS.

THE annual general meeting of the Society of Architects was held on Thursday, January 11, when the report of the Council for the year ended October 31, 1916, was presented for consideration. From it we give the following extracts:—

The Society has held forty-five meetings during the year, of which thirty-six were Council and Committee meetings and the remainder Ordinary and Extraordinary meetings, for the transaction of that portion of the Society's business in which the general body of members is concerned. The only paper read before the Society during the year was the one by Mr. H. Freyberg, F.S.I., on the "Conversion of Mansions into Maisonnettes," which was in hand at the time when the Council decided to restrict all meetings for the present to routine business.

Articles of Association.—The Articles of Association have been revised and amended in certain directions. The chief alterations are some new disciplinary clauses and the reconstitution of the Council, giving London and country members definite proportionate representation thereon with more continuity of service, and ensuring an annual influx of new councillors.

Representation.—The Society was represented at the Mansion House meeting on March 22 on the question of the settlement of discharged sailors and soldiers on the land, and at the National Congress of the Housing and Town Planning Council in London in April, and on the subsequent deputation to the Prime Minister.

The Society continues to be represented on the executive of the following bodies:—

A.A. Red Cross Detachment, London 43 V.A.D.; Architects' Benevolent Society; Architects' and Sur-

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veyors' Approved Society; Architects' War Committee and the Executive, Selection, and Employment Committees; Beaux Arts Committee; Belgian Town Planning Committee; First London Engineer Volunteers; Joint Conference on Civic Surveys; National Housing and Town Planning Council; Professional Classes War Relief Council.

Examinations.—The graduateship and membership examinations have been held in London, Liverpool, Cardiff, York, Dublin, and Toronto. Nine candidates were admitted to the examinations, of whom only three satisfied the examiners. Owing to the temporary decrease in the number of candidates, the Council decided for the present to hold the examinations annually instead of bi-annually as heretofore.

Services to Other Bodies.—The use of the Society's premises and the services of the Society's staff have again been placed by the Council at the disposal of the Beaux Arts Committee and of the Professional Employment Committee of the Architects' War Committee.

The Society has no financial responsibility in connection with either of these bodies. The Beaux Arts Committee is continuing its important educational work at the Atelier during the war under somewhat modified conditions, and the Professional Employment Committee has been the means of giving a helping hand to a number of architects at the psychological moment when paid employment, and not charity, was needed to tide them over a difficult interval.

The Society and the R.I.B.A.—The Council has long felt that, if possible, opportunity ought to be made during the war for a conference with the R.I.B.A. on some points at issue hitherto between the parties, so that the friendly relations existing at present between them might become permanent and the need for raising similar contentious questions after the war become non-existent.

After due deliberation, and taking fully into account the delicacy of the task, the Council felt justified in taking the initiative towards further co-operation. A letter was therefore addressed to the Council of the R.I.B.A. suggesting a conference of representatives on registration and other matters.

In doing so the Society pointed out that both bodies were to a large extent agreed upon the principle of registration, but divided upon the method of carrying it into effect, the result being that when either party made a move a deadlock ensued. The Society suggested that even on less contentious matters there was unnecessary overlapping and duplication of effort, and that there was room for co-operative action on economic lines in the direction of the standardisation of forms of contract and other professional documents and in other ways.

The reply of the Council of the R.I.B.A. was to the effect that as the subjects suggested for consideration at the proposed conference were of a controversial character, the Council were precluded from discussing them during the war by pledges given to their members. The Council of the Society received this information with regret.

The Council of the Society will now have to consider whether under these circumstances it shall proceed independently in formulating its registration programme, issuing its form of contract, and developing its other reform proposals in readiness for propaganda work after the war.

Scientific Research.—In response to an invitation from the Research Committee of the Board of Education to the Society to co-operate with them by indicating specific problems which in the opinion of the Society require investigation in the industries which the Society is most intimately concerned, the Council made a number of suggestions. On these being submitted to the Research Committee the Society was invited to elaborate its proposal for an investigation into the question of finding reliable but cheaper materials for use in building work. It was proposed by the Research Committee that the Society should discuss the matter with one of their members, and a Sub-Committee was formed and a number of meetings held, at which the Research Committee's representative was present.

The Sub-Committee is awaiting the report of a scientific expert as to the lines on which such an investigation might best be conducted. If his report is favourable in principle the Sub-Committee will further consider the possibilities of the Society undertaking to conduct research experiments in the direction of converting local products into suitable building materials, and to disburse any grants which the Research Committee may make for this purpose.

South African Branch.—The report and statement of accounts of the Society's branch at Johannesburg which we gave last week shows that, like the parent Society, the branch is in a sound position numerically and financially. The branch has taken its share in supporting patriotic objects both in South Africa and at home, and during the year it sent a contribution of £10 10*s.* to the funds of the Professional Employment Committee of the Architects' War Committee.

The Society and War Service.—The Society is represented on all the architectural war and relief committees, and on the governing bodies of the Volunteer Training Corps and Red Cross Detachment associated with the profession.

The Society is assisting all these organisations by the personal services of its representatives, by providing one Committee with office accommodation and clerical assistance, and by contributing from time to time to the various funds. The Society gave £10 10*s.* to the A.A. Active Service Relief Fund in recognition of its practical work in providing comforts for architects serving with H.M. Forces.

TOWN PLANNING OF GREATER LONDON—VI.

THE sixth—and last—of the recent series of lectures delivered by Professor S. D. Adshead, M.A., F.R.I.B.A., at University College, London, under the general title of "The Town Planning of Greater London after the War," dealt with existing and proposed machinery by which the various proposals can best be achieved. Professor Adshead began by examining the system, if such it may be called, under which the development of London now takes place.

First, be it noted, that of all the influences at work in the shaping of Greater London the most important are the railway companies and the various authorities responsible for Local Government. In addition, we must reckon with inherited traditions, habits, and customs of the people, many of them obsolete, but which it is necessary to revise if progression is to be the order of the day.

In enumerating the more important of the governing bodies, there should be mentioned:—

First, the London County Council, who exercise a controlling influence over a restricted area, known as the administrative county. Within this area there are the twenty-nine boroughs who, independently of one another, are each responsible for the local government of their different spheres.

Then we have the City authority, financially the most powerful, whose area, buttressed with all the inherited traditions of administrative autocracy, is situated within the very heart of the administrative county, and whose exceptional powers, unlike those of its more youthful neighbours, the borough councils, enables it to act in entire independence of the county authority.

Outside the boundaries of the administrative county we have eighty-two urban and rural councils, each in a modified way submissive to the county authorities of Middlesex and Surrey, but independent of the London County Council, from whom they are separated merely by the very artificial administrative boundary.

Of State Departments, sitting in Whitehall and Westminster, with Parliamentary powers to control the workings of these local authorities, we have the Local Government Board, the Board of Trade, the Board of Agriculture, and the Road Board. These, again, with such restricted powers as they possess, may be said to act independently. And interpenetrating and interfering with

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the undertakings of this complexity of administrative machinery, we have the railway companies, water companies, tramway companies, trustees of parks and Crown property, and a Port of London Authority, which, by private Acts, hold special privileges which they enjoy without reference to any other governing body.

With the administrative machine handled by so many independent authorities, and without any co-ordinated central authority, is it likely that in the matter of the town planning of Greater London interests and aspirations, common to every citizen and superior to local prejudices, can be adequately secured?

No doubt much has been done, and much can still be done, by conference and negotiation; but, at the same time, there is most certainly needed a central authority capable of grasping and dealing with the whole problem comprehensively, an authority which is backed by, if not actual money grants that would enable it to undertake the carrying out of a big constructive programme, at least a sensible shaking of the money bags of the Treasury.

Much has been done by conference and negotiation; but, with the best intentions in the world, the effect so far of these negotiations has resulted merely in the production of handsome but stillborn schemes and a general feeling of uncertainty, unreality, and hesitancy.

It is true that much could be done in regard to the making of arterial roads by a full exercise of the powers held by the Road Board, and in the Town Planning Act there are probably hidden away powers that, if adequately exercised, would enable the whole of Greater London to be town planned compulsorily. But where is the local authority, or even Government Department that has the courage, or the reckless audacity, in view of the public apathy, to take full advantage of the powers possessed? The real difficulty lies not so much in the lack of power, as in its distribution, and in the acceptance of the responsibility that its exercise entails.

As an example, let us take the case of the local authority through whose area it is agreed by the conference of local authorities that an important new arterial road should be constructed. We will assume that the local authority concerned has, with the best intentions, adopted the Town Planning Act, and desires to carry through the road in question. The powers held under this Act provide the means whereby this authority may decide not only the direction but also the width of the proposed new arterial road. Then where is the difficulty? The difficulty lies in that the cost of the difference in width between the width of the road required as a main arterial road and as a by-law road are such as must be borne by that local authority.

How can this be met? Either by successfully negotiating with the landowner so as to obtain his consent to the giving up of the land without cost, or by a grant that through the Road Board can be made from the Treasury; otherwise the cost will fall upon the rates. But the carrying through of all these difficult negotiations is dependent upon the neighbourly sympathy and co-operation of the adjoining local authority, who, possibly not having the same interest in the road, will not undertake the negotiations necessary to the carrying of it through their locality. The reply is that the Local Government Board, convinced, as they no doubt would be, of the necessity of town planning in that area, can force that authority to do it compulsorily. But there is a risk that in doing so the Local Government Board may be faced with a financial responsibility. The Local Government Board cannot meet it, for they have no power to ask the Treasury to make grants for such a purpose; and so, tossed to and fro from owner to local authority, and from local authority to Government Department, the responsibility of carrying out main road schemes is so difficult as to have reached an impasse.

But you would reply that all this question of liability for cost of road construction is not an issue under debate, that what is required is not the necessary funds for the construction of the road, but merely the powers of fixing the line. That is so, and it is also true, as already stated, that the local authority has in the Town Planning Act all the powers that are necessary for fixing both the direction and width of roads. But the difficulties here are twofold, even in the case of the most sympathetic and best-intentioned of local authorities. First, the owner through whose land the proposed arterial road must pass has to be negotiated with, both in the matter of direction and also ultimate cost of extra width. He may at best agree on the first issue, but subject to concessions on the second, and here is the crux of the difficulty. Who is going to relieve that local authority of the responsibility it incurs in forcing on the landowner the acceptance of a width, part of the cost of which the local authority may ultimately have to meet?

There might be in the first case a claim for sterilising merely so much of the land as was over the by-law width. That would be immediate, and ultimately there might have to be met the extra cost of constructing a wide road. So, assuming for the sake of argument that the local authority incorporated the road in its scheme, unless satisfactory arrangements could be made with the landowner there would at once be a general claim for the sterilisation of so much of the land as was over by-law width, a claim amounting to the value of such land. It would seem that the liabilities thus entailed should be borne by a higher authority.

Now, having regard to the proved reasonableness of many landowners, and the possibility of getting a considerable amount of the land required without cost, having regard to the interests of many of the local authorities in the making of the roads, having regard to the enormous importance of the carrying through of such an undertaking by London before it is too late, and having regard to the betterment that in most cases would ultimately accrue, the actual cost that would be incurred in ensuring that the land for the roads as generally approved by the conference of local authorities, if it were at once sterilised, would not be great.

The example of Liverpool proves that much can be gained simply by negotiations, provided such negotiations have a solid financial backing, which in the case of a local authority round London in very few cases exists. And why should a local authority provide roads of national interest?

The construction of main arterial roads should be undertaken and financed by a central authority, and whereas in the area of one locality there might be betterment and in the area of another considerable expense, such an undertaking would merely amount to an insurance scheme for local authorities constructing main roads that were promoted nationally.

But no existing Government Department has the necessary power to undertake this specifically. The Road Board can negotiate for land, or contribute to widenings and the improvement or construction of new roads, subject to restrictions, but it is doubtful if they could contribute merely to the cost of sterilisation.

But the construction of main roads, even though the most urgent of the proposals on the town planning programme as we see it to-day, does not satisfy every requirement. This, supplemented with a vigorous application of the Town Planning Act, would do much; but to ensure a full and satisfactory application of this Act there must be enacted legislation which will unify the proposals of railway companies with the considered proposals of town planning, and there must be powers to consider open spaces and the disposition of built-up areas comprehensively. The setting up of a new department empowered to deal with the town planning of Greater London in this way, and which, unlike the Local Government Board, which possesses merely the critical faculty, is equipped to make and carry through a constructive policy, is the only satisfactory means whereby the full complement of benefits can be secured.

It is in the interest of railway companies seeking passengers to make their schemes submissive to a central

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authority for town planning, in order that they may avail themselves of the value of a co-ordinate policy whereby the line of route decided upon may be that best suited to assist building development. No other method will prevent lines of railways obstructing free development or the development of areas which, viewed from a broad standpoint, should be kept open.

It would be a mistake if such a central authority for town planning were to be any one of the existing authorities equipped with the necessary powers. It should be a composite body, possibly representing the interests of the London County Council, the City, the Middlesex and Surrey County Councils, the Local Government Board, the Board of Trade, the Board of Agriculture, and the Road Board.

Its work would be highly technical, and it should be in a position to command the services of the most highly trained technical experts in the different departments of town planning.

It should have control over the direction of railways and methods of constructing the tracks; it should have control over the construction of main roads and public open spaces; and it should have power to town plan Greater London in so far as the allocation of areas for residential and industrial development was concerned; and, finally, it should advise the spending of county or State funds on works of metropolitan interest, and which ought not to be locally borne.

The Government is at the moment in the throes of a great war, and it would be extremely injudicious to press upon them now the promotion of such a scheme, but very soon we must be prepared and see to it that the town planning of Greater London is not left to a hundred different authorities who, with enlightened self-interest, may do remarkably well for their own particular locality, but who are quite unable to subscribe to the improvement and natural development of London as a whole.

We must beware of powers being given to an existing authority that can only take a one-sided view; we must demand the setting up of a real Central Town Planning Board, and nothing less. Now, we may take it for granted that no new department will be inaugurated during the period of the war, and meantime the chances of losing what we require are increasing daily, so that any intermediary action on the part of the Government, through any existing department, tending to the sterilisation of areas for roads is to be commended and encouraged.

We have shown that the sterilisation of land for the ultimate construction of main roads would necessitate the financial backing of the State. Negotiations with landowners with a view to ascertaining the liabilities entailed in order to sterilise the required main arterial routes generally agreed upon should at once be instituted, and having regard to the disinterestedness of local authorities in certain areas, such negotiations should be encouraged or proceeded with by a Government Department.

Financial assistance offered through the county councils or directly from State funds would ultimately be wiped off as betterment, so that it would only amount to a loan with deferred interest and sinking fund, as already explained.

The greatest difficulty would, of course, be met with in the matter of bargaining with owners, but this would be assisted in many cases by the substitution of an alternative route.

It does not appear that there ought to be any real financial difficulty in securing the sterilisation of all the roads proposed by the conference of local authorities, provided immediate action is taken on the lines suggested. Revision could be made after the war and before actual construction commenced.

A greater difficulty would be the prevention of building operations from proceeding in areas which ought certainly to be retained as open land.

Such a considered treatment of Greater London could only emanate from a central authority. It is absolutely essential, both in order to preserve the value of existing suburbs as well as to ensure the success of those that are to come, that open land be left around London as it exists to-day.

Then there is the question of how to acquire the chain of Nature reservations so essential to the complete equipment of London's recreative areas, and on the lines suggested by the map that has been prepared by the London Society.

A great deal of public education would have to be done before a Government responsible for its interests would undertake the purchase of large tracts of land for this purpose. The first essential of such undertakings is the education of the public. In due course, and when the public have come to realise the value of retaining for ever a chain of Nature reservations round London, these ought to be acquired in several ways.

A system adopted in many towns of America (and, indeed, we need not go to America for an example, as we have one in Wimbledon) has been to levy a rate on houses in proportion to their proximity to the open area, and when the need has been fully realised and ventilated, much can be obtained in the way of free gifts from landowners, and added to this there should be a contribution from county funds.

A discourse on the town planning of Greater London that omitted to refer to the housing question is incomplete, for, after all, town planning is but the basis of a great housing and building scheme.

With a deficiency of 300,000 cottages for the working classes, which we are told is no exaggeration of the present needs, which means 1,000,000 people improperly housed, is it to be wondered at that housing, and not town planning, is at the present moment uppermost in people's minds? To expect the public to neglect housing and take up town planning under such circumstances is rather like asking a drowning man to study navigation.

The preparation of a town planning scheme is a long and laborious undertaking, demanding the exercise of considerable imagination; but to seize on an empty piece of ground and at once commence erecting thereon cottages is a direct and easily grasped undertaking.

An immediate supply of cottages will never await town planning; but if the authorities concerned in the erection of cottages would, without waiting for the necessary permission to prepare a town planning scheme, without waiting for the promised Government grant, commence at once and prepare a comprehensive plan of their areas (they can get plenty of expert advice if they are so inclined), they could then find sites for cottages, which, when time had allowed of the complete development of a detailed town planning scheme, would ensure that, at any rate, they had not made what may be described as a fundamental mistake as regards site.

It is very likely that we shall shortly have local authorities authorised to prepare schemes for the building of cottages. Presumably if that permission were granted the surveyor and his staff, who are certainly not qualified to undertake such work, would at once set about and make the plans.

What is wanted is a standard cottage, or two dozen standard cottages, prepared by a Government Department in conjunction with the big building trade manufacturers and builders, and with the best architectural advice, and adapted to Garden City principles.

The local authorities, most of whom are quite incapable of preparing a design for a cottage, should only be empowered to adopt these, and that should be a condition of the grant.

Otherwise leave cottage building to private enterprise and give them where they deserve it financial assistance of a more stable kind.

It is no new idea—villages of standard cottages were erected 100 years ago.

The idea of a standard cottage sounds very unwholesome, but we are not living in the Middle Ages.

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We are living at a time when every individual cannot possibly express himself as he did then. Yet, on the other hand, we will not allow him to be numbered and ticketed till he hardly knows his own door, as he has been in his standard street of last century.

We are entering upon what Professor Patrick Geddes describes as a Neo-Technic Age—an age that realises that wealth and industry are but a means and not an end—and no man's private outlook must be so regulated as though he is nothing but an iron cog in the social wheel.

The great pioneer example is the Hampstead Garden Suburb; think of all that it means as regards the individual interests of its inhabitants. Think of all the beautiful scenery that to-day surrounds London, its delightful old villages, its forest glades, its wild commons and village greens. With a panorama of all these amenities, than which no capital in the world is better supplied, let me conclude by saying: By all means give every consideration to the economic and scientific development of London, for only by so doing can we obtain physical essentials; but let us not forget the amenities, for only in their provision lies real culture and progression.

But the whole question of town development may seem irrelevant at a time when our vision is dimmed with the circumstances of this great war.

It is almost certain that after the conclusion of peace it will be many years before the complete disbandment of soldiers not required for permanent service has taken place. What is to be done with these soldiers in the meantime? No better occupation could be given them, or, at any rate, such of them as were used to spade work and military engineering, than that of constructing roads. It will be a great pity if nothing better can be found for them than to occupy themselves with the routine of barrack life.

The difficulties of providing them with useful occupations while under military discipline and supervision are great, but here in road making is an occupation very closely allied to that of their professional duties, and which could be undertaken under the ordinary conditions of military discipline. The supply of material for road construction is another matter; but, at any rate, they could be well employed in cutting, embanking, and generally preparing the surface of the ground. This is a matter that might be gone carefully into and urgently pressed upon the Government at the right time.

In conclusion, let me emphasise the enormous importance to the future of London of setting up immediately after the war the sort of administrative machinery that will be able to guide the comprehensive development of London as a whole.

Watch the railways, realise the importance of making the question of a new railway line a public one, and do not remain in obscurity until you hear that the thing is done. We must in the future be much more alive to what goes on at the committee stage of the passing of a Railway Bill.

THE ARCHITECTURE OF LONDON HIGHWAYS.

By VIATOR.

THE CITY OF WESTMINSTER IN PETTO.

I HAVE been wandering around and about and through the metropolis of the world for many years past, for some years in the pages of "The Architect," but for how many more in the actual city itself! A city do I call it? surely, a congeries of cities, and, since the coming of the London Government Act of 1899, it has ranked as a county. For certain purposes, indeed, it consists of two such areas, for there are both the County of London and also the County of the City of London—that inner small but wealthy progenitor of the present leviathan. In some respects the dignity of the "one square mile" city has been impaired by latter-day Radical legislation, but with all this allowed for, where else does there exist or has there ever existed such a metropolis—one compounded of two counties, two cities and twenty-seven administrative boroughs; a metropolis containing four cathedrals, an abbey church such as no other city can rival for the interest of its entombed history, a river coursing for twenty-two miles between the eastern boundaries of Woolwich and the western boundaries of Chiswick, and a metropolis giving its name for certain purposes to an extent of territory approaching seven hundred and fifty square miles in area? And how many statutory and other authorities, too, exist for the greatest of the world's wonders, the unit known as London! For when all is said, it is a unit whose beginnings lie in the remote past, whose greatness commenced within the walls of a fortress less than one square mile in area, now reinforced by an extent of territory more than one hundred and twenty times multiplied. And the extra-municipal area, as hinted above, must be remembered, the Greater London served by London's railways, tramways, police, water, Port Sanitary Authority and Postmaster-General.

We must remember too, that London, *i.e.*, municipal London invades four geographical counties—Middlesex, Kent, Surrey and Essex; and here is an interesting detail worthy of note, that this invasion retains its ever-present mark, differing from the city of Birmingham, where the Legislature provides for bringing within the county of Warwick any areas absorbed by the midland city from time to time in the adjoining counties.

In days now past, but not yet remote, there was a legion of authorities in London with overlapping powers and decentralised confusion—Vestries (lay and clerical), Metropolitan and District Boards of Works, Commissioners (of Baths and Wash-houses, Libraries, Lunacy and Sewers), School Board, Asylums Board, Water Companies, Unions. But much more was it dis-union, and it is with relief that order may be seen arising out of disorder and chaotic conditions, due largely to the energies of the London County Council. It is difficult for a denizen of this cosmic phenomenon to avoid an attack, a series of attacks, of megalomania; and I, born, bred and living all my life within ten miles of Charing Cross, and carrying on my daily work under the shadow of St. Paul's and within the sound of Bow bells, may well be pardoned my pride in this greatest of great cities—not, as we may believe (thank God) to be overthrown within forty days or any period by the Hunnish brood of Satan.

Therefore is it that I have so often lingered about the highways and by-ways, the parks and open spaces, the river banks and the quiet squares; passed suddenly from the roar of traffic under and beyond an archway, where the hush as of Sunday rest prevails, to emerge at the other end of the court into another highway with its own roar, its own individualised crowd, careless of each and every other. And therefore is it that from time to time I have contributed these notes on the qualities of the structures exposed to view. The circumscribed city of St. Paul's, London, has often received my attention; the main thoroughfares of the city of St. Peter's which is the city of Westminster have been largely considered by me, but there is still much material hitherto unregarded therein, and this I will now proceed to lessen in bulk.

Ancient as Westminster is, its present area dates back no further than the London Government Act of 1899, prior to which it consisted mainly of the vestries of the parishes of SS. Margaret and John. The Strand had a District Board of Works; St. George's, Hanover Square and St. Martin's-in-the-Fields had their own vestries; areas such as the Savoy and St. Anne's, Soho, had certain distinctive functions. But all this is now Westminster, which ranks next to the adjacent city in wealth and vastly exceeds it in area and in residential population. It is also the seat of the Government, including in its area the Houses of Parliament and the various Departmental Offices, the Law Courts (but not the Central Criminal Court), the University, and the great Valhalla of monarchs and ministers, poets, dramatists, authors, actors and musicians—Westminster Abbey.

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I do not propose to follow any settled or studied direction of route; I may alight from my agile Pegasus here and there and elsewhere, for this is to be no "Guide to the Perplexed," such as Murray or Baedeker. In this desultory flight the building with which I will commence is the most ancient of all, the old Roman Bath in Strand Lane. How many tens of thousands of people pass to and fro along the Strand daily, year in and year out, without being aware of their proximity to this relic of Roman London! It is not a work of art in its present condition, but the interest of it is indisputable. The Earl of Essex restored and enlarged it in the year 1588 (that famous Armada year), and I believe that Queen Elizabeth plunged into its icy-cold waters, which are constantly supplied from a spring. There is a slight effort at wall-tile decoration, but in fact the interest in the Bath is mainly archæological. This is not the case with the Chapel Royal, Savoy, not far distant, tucked away between the Strand and the Embankment; it is of the "Perpendicular" period of Gothic art, and is patently architectural inside and outside, but its exterior has an added value due to the mise-en-scène, which is at once simple and effective. Restored after a fire in 1864, it is still partly mediæval and the old piscina is still to be seen enriched within. But once again, the average pedestrian will go east and west, north and south, within a few yards of this pleasant little relic of mediævalism, unconscious and uncaring.

It is the same in the city of London with its old churches of the Temple and of St. Bartholomew, its reminiscences of Pepys, of Johnson, of Hemminge and Condell and others. Just in passing I will draw attention to one interesting personality, closely associated with Westminster; I refer to George Villiers, Duke of Buckingham, who had an estate here and whose memory is still preserved in the street nomenclature off the Strand. "Of Alley" is not now known by this name, though I believe it exists, but George Street, Villiers Street, Duke Street and Buckingham Street are still current. The last named too is historically interesting by reason of its being a one-time domicile of Pepys and other interesting personalities. Indeed, there are many such houses in the by-streets worthy of attention, either for their inherent artistic appearance or for their historical associations.

But I am now going to wing my Pegasus to a spot south of Victoria Street, where will be found another old building—I refer to the Greycoat Hospital, founded in 1698 and receiving its charter in 1706. This is a quaint old pile in brick with tiled roofs and wooden eaves cornice; centrally along the front slope of the main roof there is a clock stage, surmounted by an octagonal wooden flèche with an effective iron vane. The corridor along the front, emphasised by its separate span roof, is an unusual feature. The wing buildings are loftier than the central block, and thus serve to give value to the low lines of the latter.

Not far away and almost contiguous with the Roman Catholic Cathedral is St. Andrew's parish church, an entirely worthy edifice in rubble walling in the Early English style of Gothic. A somewhat unique feature is the punctuation of the aisle windows by their individual invasion of the roof in the form of separate gables; altogether there are many original details about the building. What a contrast to this is the church of St. John the Evangelist in Smith Square, designed by Thomas Archer (c. 1723)! In the one case, a Gothic Renaissance edifice of singular charm, in the other an Italian Renaissance building of no charm at all. St. John's has been not inaptly likened to an elephant on its back; there is no exterior sign of its clerical import, it is absolutely ugly, and it is, without any mincing of words, a blot upon the highway.

I recall a famous prison which stood in this neighbourhood a few years ago; there was nothing handsome about Millbank Penitentiary, but it was notwithstanding effective, with its various blocks radiating from one common centre and with its hexagonal treatment. It must be more than twenty years since it was demolished—an institution which is said to have cost half a million sterling originally. On its site many buildings have been erected, more profitable, it may be hoped, than a house of detention for a thousand criminals. Along the Embankment public gardens have been laid out in front of the former prison, and flanking the highway many new buildings have been erected. Here are the offices of the Crown Agents for the Colonies—a good Renaissance stone block, dignified and with well-distributed ornament; the massive pavilion roof at one end balances the angle tower block.

Were I to record all the anæmic or (at best) ordinary specimens of modern architecture erected in Westminster the result would prove tedious to readers or would more probably fail to attract perusal. Therefore, passing by Westminster House, a few words may be devoted to the Registry of Friendly Societies in its Renaissance dress. The substructure is stone and the superstructure is in rustic brickwork with stone lacing-courses and window dressings to the projecting masses. Between the latter, whilst the window-aprons are stone, the general dressings are in red gauged brickwork. The main entrance at the angle is carried out in the Roman Doric style. There is a good overriding cornice and the building is altogether worthy of notice.

In the streets behind Millbank there are some attractive modern Queen Anne house-fronts, but without lingering there, attention may next be directed to the quondam Royal Architectural Museum in Tufton (formerly Bowling) Street. Its origin is of not far distant date, seeing that the late Sir Gilbert Scott was one of its sponsors. The building was erected in 1869 from the designs of Messrs. Ewan Christian and Joseph Clarke; the high ideals of the founders did not prevent a very dull piece of Gothic art being produced, nor did the latter, au contraire, prevent the ideals being for a time realised. But its fortunes waned, and after vicissitudes in which the London Architectural Association has shared, the museum collections have now found a home in the Victoria and Albert Museum. R.I.P.! for a more depressing collection of exhibits I think it has never been my lot to encounter.

In my peregrinations I have only occasionally met with the work of Mr. Arthur Keen, but here in Westminster in Ruskin House, Rochester Row, is a very worthy specimen of his art; a building that will not lose in effect by the passage of time, though not requiring time to give it value.

I desire now to call attention to three churches within short interchangeable distances. Holy Trinity, Bessborough Gardens, is happily situated on an island site with an outlook on the Embankment; this example of J. L. Pearson's art is a truly fine specimen of modern Gothic; it groups and masses well and it possesses a massive, dignified central tower and broached spire, all in stone. There is very little to criticise adversely in this church, and that little may well be allowed to pass here uncommented upon. St. John the Evangelist, Wilton Road, is a Gothic church, designed by the late Sir Arthur Blomfield; from its appearance it may be assumed that much less money was available here than for Holy Trinity; for this plain brick building may provide a useful structure, but it is certainly one that is not at all ornamental. The unusual treatment of the gable over the main entrance may be noticed, the coping being carried out in "tumbled-in" brickwork. Stone is but sparingly used throughout, lacing-courses appearing between the brick courses in the pyramidal roof of the tower, which is the best feature and is sufficiently massive, but the whole building is dull, lifeless, and a strong contrast to Holy Trinity. St. Saviour's Church in St. George's Square possesses distinct merit, holding an intermediate place between the two last mentioned. It is carried out in a rather early phase of Gothic; the angle tower forms a good feature in a generally interesting building.

From this neighbourhood I will steer my Pegasus to the confines of Kensington, to a part in fact by many

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supposed to be under the rule of the Royal Borough of that name, but in fact just within the city of Westminster. Here are the Albert Memorial, the Royal Albert Hall, Lowther Lodge, Albert Hall Mansions facing Kensington Road, and a group of buildings in the rear, which latter will now be dealt with. And firstly, there is the memorial to the Commissioners of the Great Exhibition of 1851, and associated particularly with the Prince Consort, whose bronze statue surmounts the pile; it is not such an expensive looking structure as the one in the Gardens opposite, nor are there any magnificent stone sculptured groups, but in other respects it transcends the better-known Memorial; it is carried out in red and grey granite with bronze panels and capitals. The Royal College of Organists will attract attention by reason of its scheme of plaster decoration in colour; the Royal College of Music is passable without being remarkable.

Holy Trinity Church, designed by George F. Bodley, is the swan-song of his art. Praise cannot be extravagant in reference to it, and his various conceptions are being by degrees realised, so that it is hoped eventually to show the work complete, as he conceived it; it is in the early Geometrical style of Gothic and has an interesting and novel façade.

The City and Guilds of London Institute Extension (the Engineering College) forms a portion of the Imperial College of Science and Technology, and was erected in 1913, from the designs of Sir Aston Webb, who also erected the buildings in Imperial Institute Road known originally as the Royal College of Science, and situated in the Borough of Kensington. The first portion of the City and Guilds Institute, erected in 1884, was designed by Alfred Waterhouse, one of the architectural luminaries of the nineteenth century. This first portion (known as the Central Technical College) is executed in red terra-cotta and possesses a fine series of the City Guilds' coats-of-arms; good as the extension is, I regret that it was not executed in terra-cotta, in place of stone; attention must be directed to the really fine carved stone coat-of-arms on the angle of the new building.

Over the Royal School of Art Needlework there is no need to linger, for there is a lack here of homogeneity of design and there is a poor sense of proportion. The Imperial Institute, the public memorial of Queen Victoria's Jubilee, is an architectural failure, even as it has proved a failure in its original conception; a portion of it is still retained as the Institute, but a large portion has been transferred to form the home of London University. The architect, Mr. Thomas Collcutt, missed a great opportunity here, and produced a building lacking in all the best qualities of Art. The entrance is mean and the couchant lions are no better (and no worse) than those supporting the entrance to the Edward VII. Galleries of the British Museum. Landseer provided a type of what lions should be, and Sir Thomas Brock has carried on the created tradition in the Victoria Memorial bronze groups outside Buckingham Palace.

And here I think I had better rein in my steed. Much more I might add, but enough has been written for the time being. One thing is perhaps by now patent, that the true spirit of Art, the divine flame, is possessed by some architects in generous measure; but it is elusive, and some who at times seem touched by it are at other times left cold and lifeless. This spirit may assume various shapes, but its true inwardness may never be mistaken:—

> **Whose secret presence, through Creation's veins**
> **Running quicksilver-like, eludes your pains,**
> **Taking all shapes of fact and fancy—ah!**
> **They change and perish, all; the Art remains.**

MR. E. V. LUCAS having been invited by Mrs. Abbey to write a memoir of the late E. A. Abbey, R.A., asks such of our readers as have letters from that artist, and are willing to lend them for possible publication, to send them to him at Chelsea Lodge, 42 Tite Street, London, S.W., where they will be carefully handled, copied, and quickly returned.

WATER SUPPLY OF ANCIENT ROME AND NEW YORK.*

By W. J. E. BINNIE, B.A., M.Inst.C.E., F.G.S.

THE choice of a subject for a presidential address is a difficult one, seeing how wide has been the field already covered, but after a good deal of consideration I came to the conclusion that a short description of the most important works of sanitary engineering in ancient and modern times could not fail to prove of interest to the members of our Institution, and I propose first of all to deal with the water supply of ancient Rome as being the most important sanitary engineering work of ancient times.

We are fortunate in having the necessary information placed on record by Frontinus, who held the office of Water Commissioner to the City of Rome in A.D. 97. The manuscript of the "de aquis" by Sextus Julius Frontinus is kept at the Benedictine Monastery of Monte Casino, half-way between Rome and Naples, and is thought to be in the handwriting of Pietro Diviano, who was Chief Abbot about 750 years ago. The monastery was the parent of the Order, having been founded by Saint Benedict himself in the year 529, and about A.D. 1400 this manuscript was discovered in the library by Brachiolini.

When we consider the gross ignorance and corruption into which the inhabitants of these monasteries fell in the Middle Ages, it is a matter of congratulation that even so many ancient documents survive. We have a description of a visit paid by Boccaccio in the fourteenth century to this actual monastery, which gives a good idea of the manner in which these monastic libraries were looked after in those times. The story is told by Benvenuto in the following words:—

"I will repeat what my venerable preceptor, Boccaccio of Certaldo, pleasantly narrated to me. He said that when he was in Apulia, being attracted by the fame of the place, he went to the noble monastery of Montecassino, of which we are speaking, and, being eager to see the library, which he had heard was very noble, he humbly—gentle creature that he was—besought a monk to do him the favour to open it. Pointing to a lofty staircase, he answered, stiffly: 'Go up; it is open.' Joyfully ascending, he found the place of so great a treasure without door or fastening, and, having entered, he saw the grass growing upon the windows, and all the books and shelves covered with dust. And, wondering, he began to open and turn over now this book and now that, and found that there were many and various volumes of ancient and rare works. From some of them whole sheets had been torn out, and in others the margin of the leaves were clipped, and thus they were greatly defaced. At length, full of pity that the labours and studies of so many illustrious minds should have fallen into the hands of such profligate men, grieving and weeping he withdrew. And, coming into the cloister, he asked a monk whom he met why those most precious books were so vilely mutilated. He replied that some of the monks, wishing to gain a few ducats, cut out a handful of leaves and made psalters, which they sold to boys, and likewise of the margins they made breviaries, which they sold to women."

The well-known American engineer, Mr. Clements Herschel, visited the monastery, obtained photographic reproductions of the manuscripts, and published the first translation into English in 1899.

In reading the works of Frontinus one cannot fail to be struck with the similarity between the methods and thoughts of the ancient Romans and those of to-day. Frontinus begins by the usual complimentary reference to Nerva Augustus, the Emperor who conferred upon him the office of "Curator aquarium," an office which, he says, contributes partly to the convenience and partly to the health even to the safety of the city, and from olden

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* A Presidential Address delivered before the Institution of Sanitary Engineers.

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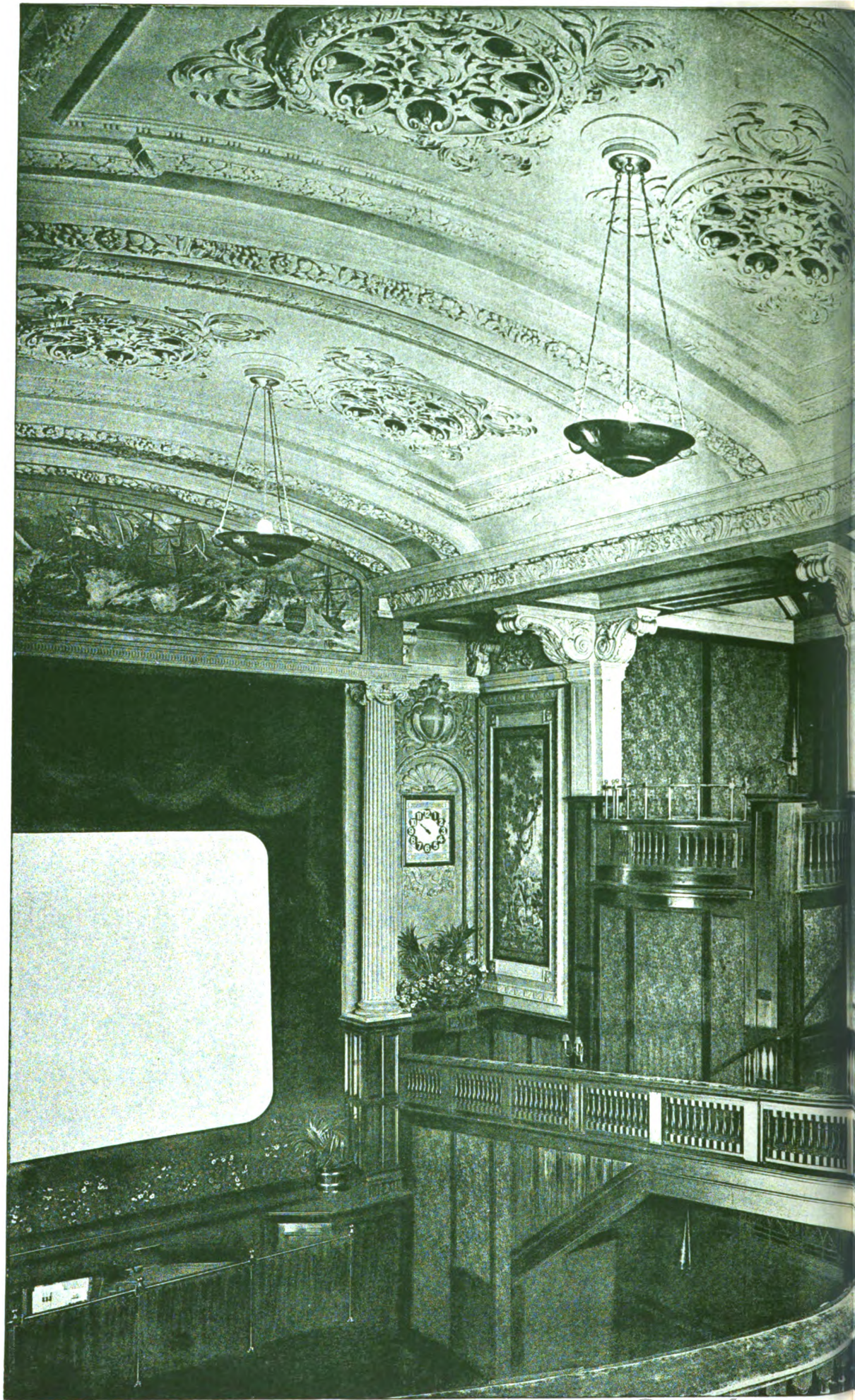
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MR. F. BLIGH BOND

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THE PICTURE HOUSE, PORTSMOUTH. INTERIOR LO

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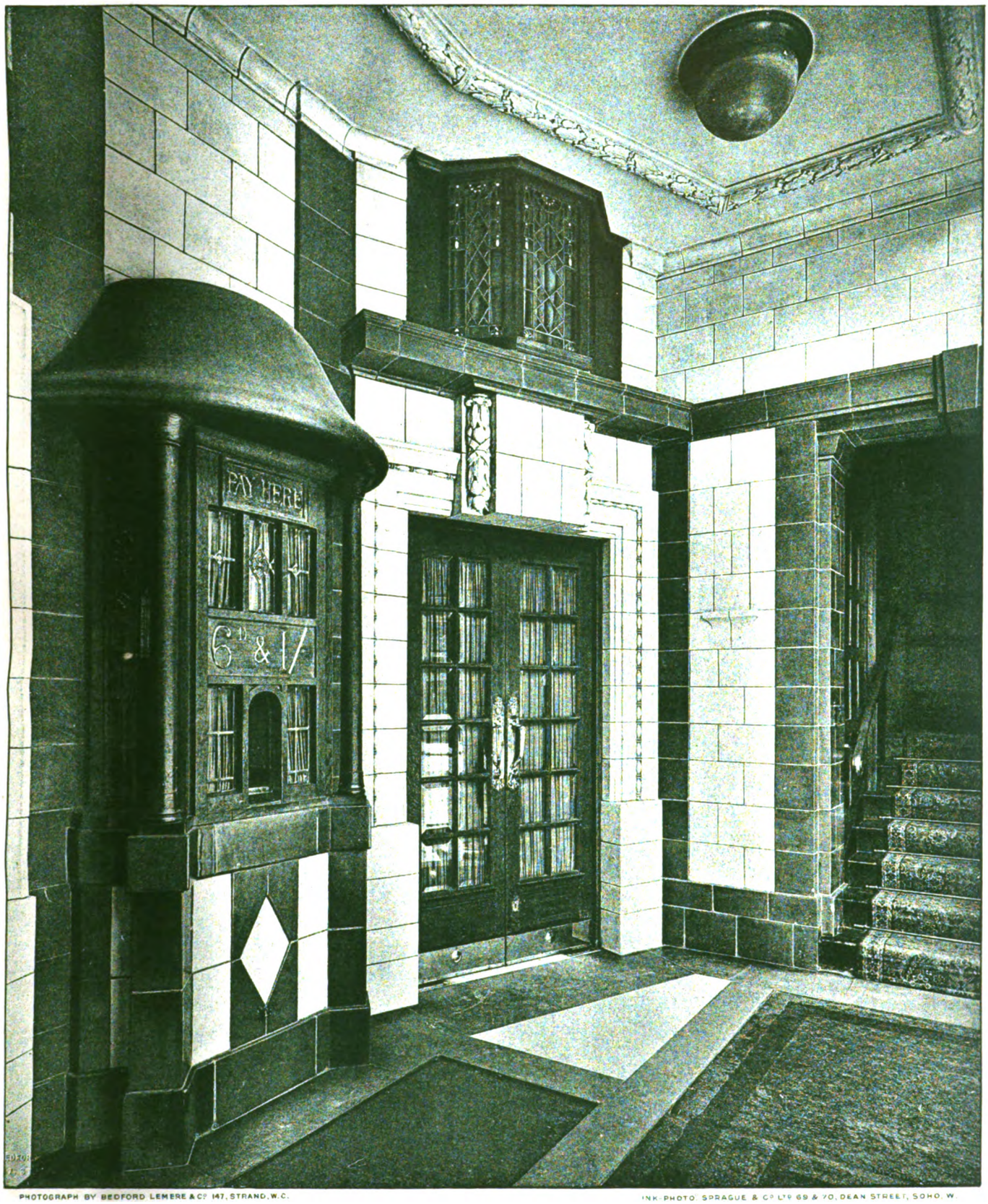


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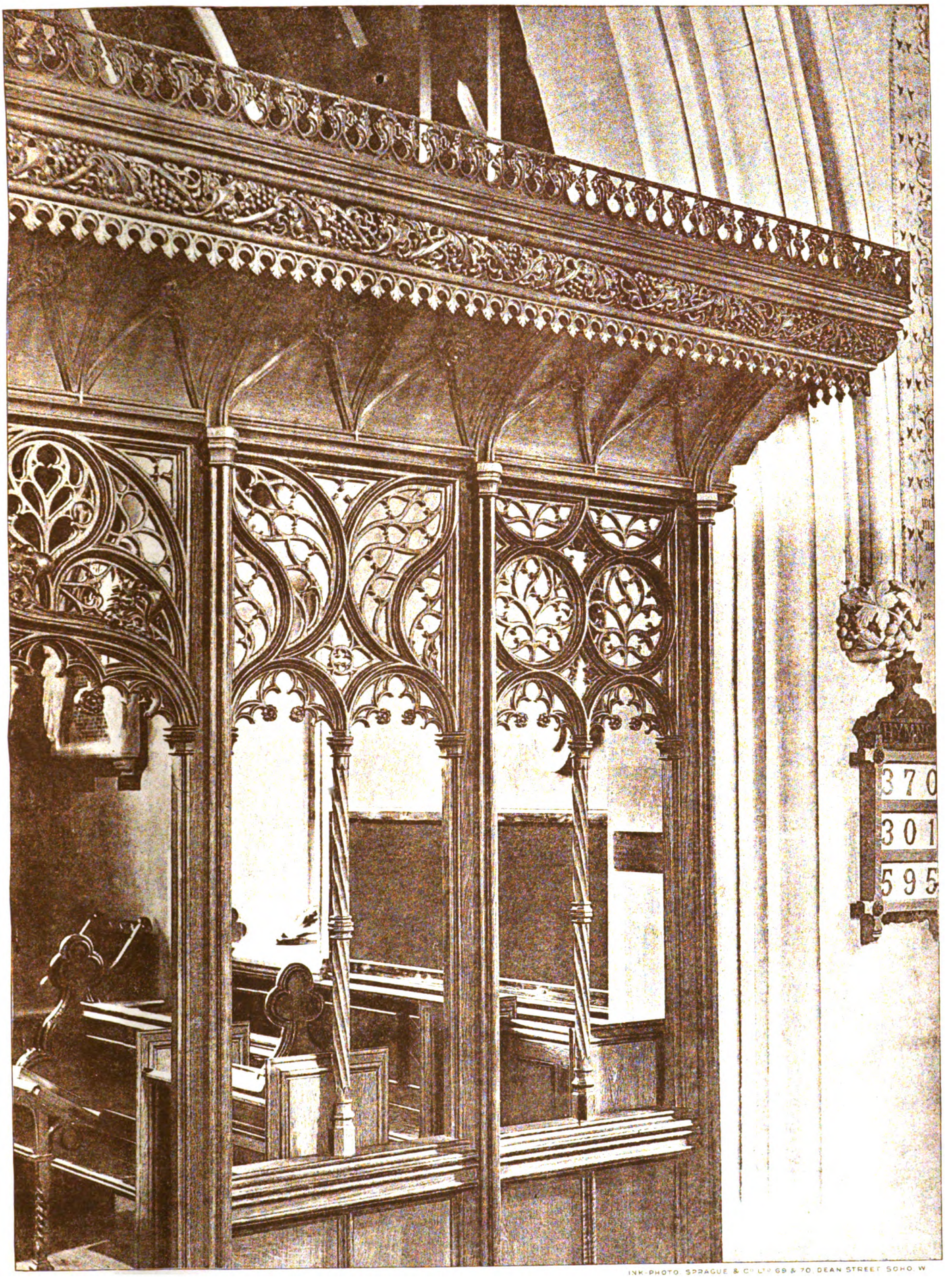
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DETAILS OF OAK CHANCEL SCREEN, FALFIELD CHURCH, GLOUCESTER.

Mr. F. BLIGH BOND, F.R.I.B.A., Architect.

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times exercised by the most distinguished citizen, and then continues:—

"I therefore consider it to be the first and most important thing to be done, as has always been one of my fundamental principles in other affairs, to learn thoroughly what it is that I have undertaken.

"There is indeed no better foundation for any business; nor can it in any other way be determined what is to be done, and what omitted; nor is there for a fair-minded man so debasing a course as to perform the duties of an office entrusted to him, according to the directions of assistants; a course, however, which must be followed whenever an inexperienced official takes refuge in the practical knowledge of his assistants whose services, though necessary for rendering help, should nevertheless be only a sort of hand and tool of the principal in charge. . . . It is for this reason that I have set down in this commentary all that I could gather as bearing on the subject-matter, and after having arranged and codified it in accordance with my habit, as already exemplified in other offices, so that I might consult it as a guide in the duties of this."

The Water Commissioner of ancient Rome was indeed a very important person, and Frontinus occupied the office of Prætor; he was also three times Consul, and Governor of Britain. It is clear, therefore, that the ancient Romans fully appreciated the value of sanitary science, seeing that this office was held to be so great an honour as to be accepted gladly by such a distinguished person as Frontinus. I am afraid that nowadays our prominent politicians would not feel flattered by an invitation to look after the water supply of even the chief city of the world. Frontinus was Governor of Britain A.D. 76-78, and we find reference to him by Tacitus in his life of Agricola, of which the following is a translation: "Now the conduct of Cerealus was such that it might well obscure the fame of his successor, but Julius Frontinus, a great man, sustained the full glory of Cerealus at every opportunity, and subdued the powerful and warlike people of South Wales, in whom he had to surmount not only a determined courage but also the difficulties of their country." Gallant little Wales no doubt proved a very tough nut to crack, and never was entirely conquered. Whenever reference is made to Frontinus, he is spoken of in terms of affection and respect, and at the risk of exhausting your patience I shall give yet another translation. The poet Martial writes to excuse himself for having somewhat neglected Frontinus:—

"Whilst I frequented, Frontinus, the calm retreats of Luxor-on-the-Sea, and the neighbouring Baiae with its villas on the shore, the groves free from the troublesome grasshoppers in the heats of July, and the fresh water lakes, I was then at leisure in company with you to cultivate the learned muses; but now mighty Rome exhausts me. Here, when is a day my own? I am tossed about in the vortex of the city, and my life is wasted in laborious nothingness. Meantime I cultivate some wretched acres of a suburban farm, and keep my homestead near thy temple, O sacred Romulus. But love is not testified solely by day and night attendance on a patron; nor does such waste of time become a poet. By the sacred muses and by all the gods I swear that I love thee, though I fail to exercise the officiousness of a mere client."

Letter-writing in ancient Rome was an art, and few of us to-day could put forward our excuses in a form so flattering to the recipient.

It is with regret that I must turn now from the man himself to his works. He begins by stating that from the foundation of the city for 440 years—*i.e.*, between 754 and 313 B.C.—the Romans were content to use the water which they drew either from the Tiber or from wells or springs, but at the date of his report the following aqueducts supplied water to the city, taken in the order of their construction: The Appian, the Anio Vetus, the Marcia, the Tepula, the Julia, the Virgo, the Alsietinian (also called Augusta), the Claudia, and the Anio Novus.

Springs of water were highly valued and considered as sacred from the earliest times. Lanciani, in his "Ancient Rome," gives an example of extraordinary interest. In 1852 the Jesuit Fathers, who are the owners of the ancient "Aquæ Appolinaris," situated on the west border of the Lake Bracciana, sulphur springs celebrated for their medicinal properties, had the mouth of the central spring cleaned out. On drawing down the water a few feet they came across brass and silver coins belonging to the fourth century A.D. Below this were gold and silver imperial coins and votive silver cups, and below a deposit of silver and consular coins of the last centuries of the Republic resting on bronze coins belonging to the earliest period, below which were shapeless fragments of copper used as coinage before coins were minted, and at the bottom of all a stratum of arrow-heads and knives of polished stone; proving that the spring had been used for its medicinal properties and considered sacred by Neolithic man and that the belief in its sacred character had been passed down through countless generations.

The Appian Aqueduct was so named in honour of Appius Claudius Crassus, better known as the constructor of the Appian Way, also called after him. It was completed in 313 B.C., and had therefore been in existence for nearly 400 years when Frontinus describes it. Frontinus writes: "Appius alone enjoyed the honour of giving the aqueduct its name, and it is said of him that by various contrivances he managed to extend the term of his office of Censor until he had completed not only the aqueduct but also the highway." From other hints we can make a shrewd guess at the various contrivances which were necessary. The Appian Aqueduct commenced at a stone quarry near the Anio River, where the spring which it intercepted can still be seen. The total length from the intake to its termination at the Salinæ or salt warehouses on the shores of the Tiber, which existed there until 1888, was about ten miles, all under ground, with the exception of about 300 feet near the Porta Capina. Where it enters the city it was over 50 feet below the surface of the ground, which probably meant tunnelling. Its cross section is not stated by Frontinus, but it is given by various authorities as having a waterway of 12½ square feet, and it terminated in the usual large masonry cistern, at which point the lead distribution pipes commenced. Frontinus states that Augustus brought in an auxiliary supply, which joined this aqueduct with the city walls.

Forty years after the construction of this aqueduct the contract for the Anio Vetus was let for the sum realised by the sale of the spoils taken from Pyrrhus. This aqueduct conveyed the waters of the River Anio to Rome, the intake being above Tivoli, and its total length was forty-three miles, of which only 1,100 feet was above ground. It entered the city about 90 feet higher than the Appian Aqueduct, and its waterway was about 30 square feet.

(*To be continued.*)

Correspondence

[The Editor will not be responsible for the opinions expressed by Correspondents.]

Building By-Laws.

SIR,—Mr. Gordon Allen's letter in "The Times" this morning is a very welcome protest against a tyranny from which we have suffered for so many years. On all sides, in public gardens and elsewhere, we see Government buildings are being erected without the least regard for building by-laws, which press so heavily on private owners, builders, and would-be tenants of cottages.

As Mr. Allen truly says, "Even at the present time a certain amount of building is going on, and must go on, for the lamentable shortage of cottages almost everywhere has become a serious menace to the production of food and other necessary commodities. And there is not the slightest doubt that this house famine is largely due to the building regulations now in force, which have had

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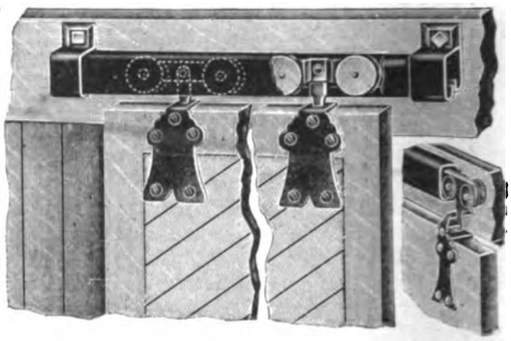
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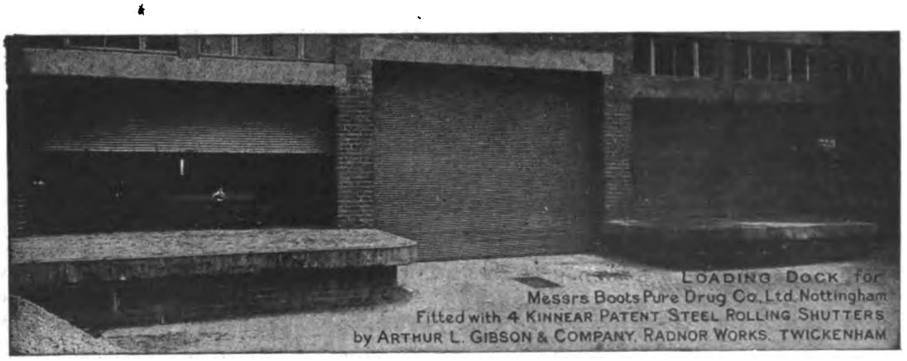
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the effect of deterring or adding needless hardships to the efforts of cottage-builders. Both the cost of building and the rate of interest are at present so high—and will probably remain so after the war—that the abolition of many of these out-of-date and inconsistent enactments has become a question of national importance."

Urgent as the matter is, we can hardly expect relief through legislation at the present time. There is, however, a means at hand which might give us all we want without any additional risk of danger from fire or faulty sanitation.

The Defence of the Realm Acts have deprived us of liberties we value, but which we readily surrender in a state of war. In this matter of building by-laws these Acts might add to our liberties for the period of the war to the great advantage of everybody, if regulations were made giving permission for cottages to be built without regard to building by-laws provided their planning and construction be certified as satisfactory by architects or engineers recognised as qualified by the several institutions connected with engineering and architecture.—Yours, &c., MARK H. JUDGE.

7 Pall Mall, S.W.: January 9, 1917.

Mr. Joseph Pennell at Munition Works.

SIR,—"The Architect" is not a paper to take up in a hurry and to cast down almost unused; it is rather a bonne bouche to keep in reserve for leisure moments. This is my explanation for the delay in communicating with you respecting the correspondence that took place in "The Architect" in regard to Mr. Pennell's drawings.

I think that the enclosed cutting from a recent issue of the "Morning Post" may be of interest to compare the views held by the two art critics concerned.

I should like to express my appreciation of Mr. Pennell's work and of the journal so ably edited by you.—Yours, &c., PERCY L. MARKS.

10 Matheson Road, W. Kensington: January 9, 1917.

The Late Edward Cratney, F.R.I.B.A., M.S.A.

SIR,—In your obituary notice of the late Mr. E. Cratney you say that he served his articles with Mr. J. F. Davidson, of Willington Quay. This is wrong, as he served them with Messrs. Hicks & Charlewood, of Newcastle-on-Tyne, and from there went to Mr. J. H. Morton's office, South Shields, as an improver.—Yours, &c., Per pro Mr. M. CRATNEY,

88 Station Road, Wallsend-on-Tyne: R. C. January 8, 1916.

BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

ENGLAND.

CUMBERLAND.

Longtown.—Proposed isolation hospital. Mr. George Armstrong, architect, 24 Bank Street, Carlisle.

DERBYSHIRE.

Derby.—Works, Black Lane: extensions for Messrs. Ley.

DEVON.

Exeter.—Smallpox hospital for six beds (£4,000).

ISLE OF WIGHT.

East Cowes.—The Albert Hall, &c.: conversion into houses for Messrs. S. E. Saunders & Co.

KENT.

Maidstone.—Buildings, Boxley Road: restoration for Mr. S. P. Sanders.

Works, St. Peter Street: extension for Messrs. Tilling, Stevens, Ltd.

LANCASHIRE.

Glasson.—Mission-room for the Seamen's Mission.

Lancaster.—Motor garage, Bridge Lane, for Messrs. J. S. Baxter & Sons.

No. 23 St. Nicholas Street: additions for Mr. J. Foxcroft.

Liverpool.—Emmanuel Church schools, Mill Road: proposed extensions.

Ormskirk.—Works: additions for Messrs. C. Hesford & Co.

LEICESTERSHIRE.

Earl Shilton.—Transformer houses, for Messrs. Hurst & Cotton.

NORTHAMPTONSHIRE.

Northampton.—House, Lower Priory Street, for the British Chrome Tanning Co., Ltd.

NORTHUMBERLAND.

Low Prudhoe.—Post office.

Newcastle-on-Tyne.—Infirmary: proposed extension.

SUSSEX.

Hove.—No. 17 Second Avenue: conversion into flats for Messrs. Albery & Lawrence.

No. 40 Brunswick Square: conversion into flats. Mr. F. Axtell, architect, 38 Ship Street.

WARWICKSHIRE.

Foleshill.—Two houses, Benthall Road, for Mr. E. Pearson.

WESTMORLAND.

Windermere.—Calgarth Hospital: additions and alterations.

YORKSHIRE.

Goldthorpe.—Wesleyan church (£2,000).

Pudsey.—Fire station. Messrs. Jowett, Kendall & Sons, builders, South Parade.

Rotherham.—Proposed working-class dwellings.

WALES.

Llandudno.—"Melfort," West Parade: additions for Mr. A. H. Russell.

"Bronberllan," Tynycoed Road: additions for Mrs. Haigh.

SCOTLAND.

Aberdeen.—Police workshops, Jasmine Terrace.

Shop and store, North Esplanade East. Messrs. Sutherland & George, architects, 26 Crown Street.

Cockburnspath.—Stottencleugh farmhouse: additions and alterations. Messrs. Thoms & Wilkie, FF.R.I.B.A., architects, 46 Reform Street, Dundee.

Glasgow.—Proposed Council houses.

Shop, Hamilton Street, Polmadie: extension for Messrs. J. H. Carruthers & Co., Ltd.

Shop, &c., Parkhead, for Messrs. William Beardmore & Co., Ltd.

Greenock.—Foundry and shop, Oakfield Terrace, for Messrs. J. G. Kincaid & Co.

Hawick.—Works, Buccleugh Street: addition for Messrs. Elliot, McTaggart & Co.

IRELAND.

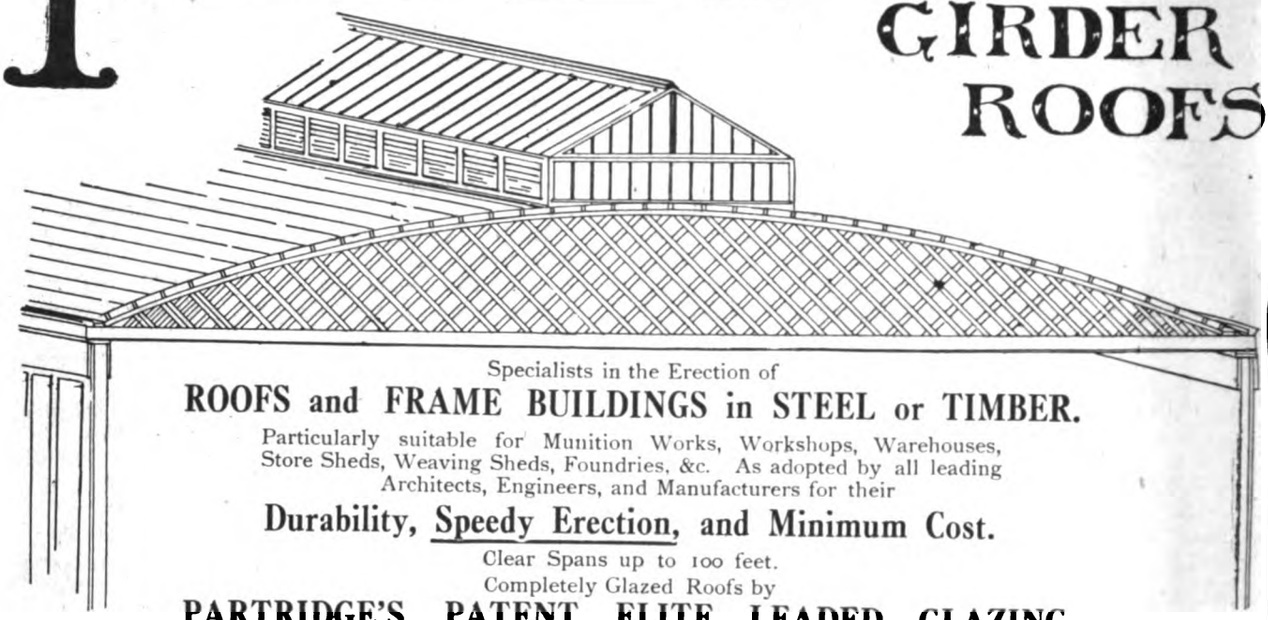
Dublin.—Terrace of five houses, Royal Canal Bank, Phibsborough. Mr. F. W. Higginbotham, architect, 9 Lower Sackville Street.

A CABLE received in London by the High Commissioner for Australia says that the New South Wales Government has endowed a Chair of Architecture at the Sydney University for £2,000 annually. It is claimed that this is the first occasion that a Government of the British Empire has recognised the national importance of architecture.

ALDERMAN GEORGE GUMMER, J.P., head of the firm of G. & W. G. Gummer, brassfounders, Rotherham, has declined an invitation to become the Liberal candidate for the Rotherham Parliamentary Division, which seat has been rendered vacant by the elevation of Mr. J. A. Pease to the peerage. Mr. Gummer is senior alderman of the Rotherham Corporation, and for something like twenty-one years has held the important position of chairman of the gas undertaking. He is also president of the Northern Brassfounders' Association.

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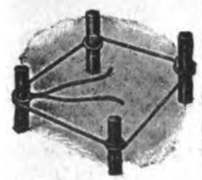
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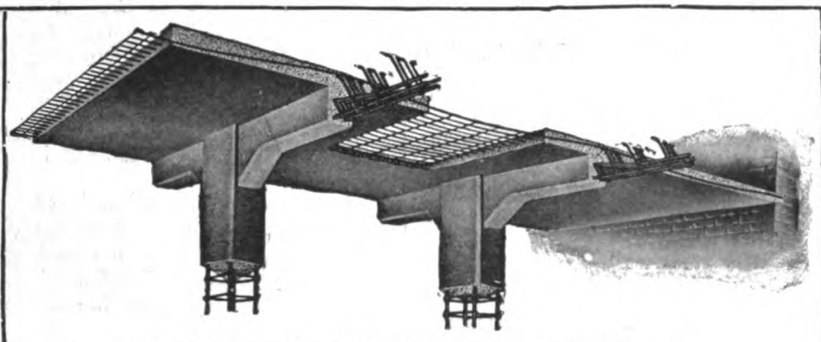
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THE ARCHITECT

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FORTHCOMING EVENTS.

Friday, January 19.

Egypt Exploration Fund : Paper entitled "The Cult of the Dead," by Mr. A. M. Blackman, M.A., at the Rooms of the Royal Society, Burlington House, at 4.30 P.M.

Tuesday, January 23.

Institution of Civil Engineers : Paper to be submitted for discussion on "The Physical Features of 'Adam's Bridge,' and the Currents across it, considered as affecting the proposed construction of a Railway connecting India with Ceylon," by Francis John Waring, C.M.G., M.Inst.C.E., at 5.30 P.M.

Wednesday, January 24.

Royal Institute of British Architects : Conference on "Architecture and Civilisation," to be opened by Professor W. R. Lethaby, F.R.I.B.A., at 3.30 P.M.

Thursday, January 25.

Concrete Institute : Paper entitled "The Care of Ancient Monuments," by Mr. C. R. Peers, F.S.A., at 5.30 P.M.

TIMBER IMPORTS IN 1916.

NATURALLY, the timber import trade of the past year reflects in an intensive degree the effects of war on commerce. Our timber supply is in normal times practically all imported, and, despite the depletion of our homeland woodlands which is now going on, remains very largely so even at the present time. The Board of Trade returns for the last six years show that, whereas in 1911 we imported of softwoods 9,740,436 loads at a cost of £25,847,077, during the last year our imports declined to 6,318,872 loads, whilst the cost rose to £40,199,469. Although these figures are in a sense inaccurate, inasmuch as they do not include the very large amounts now imported direct for Government account, they do, nevertheless, illustrate the fact that our imports of vitally necessary commodities are immensely restricted, but that we pay far more for them. The drop in quantity of imports is still more strongly emphasised if we refer to the figures for the year immediately before the war, when we imported 11,589,811 loads at a cost of £33,789,356.

Another interesting effect of the war on timber imports is seen in a comparison of the relative proportions from the principal different exporting countries. In 1913 Russia supplied 51 per cent. of our imported softwoods, Scandinavia 25 per cent., Canada and the United States 22 per cent. For last year the figures were Russia 16 per cent., Scandinavia 50 per cent., Canada and U.S.A. 27 per cent. As prices have been so enormously enhanced, we have here clearly shown an indication of one direction in which the Scandinavian neutrals have so immensely profited by the war. The figures for the average import cost per standard worthy of comparison are for 1913, £10 9*s*. 3*d*.; for 1916, £24 10*s*. 3*d*. This additional burden of cost is mainly attributable to the enormous increase in freights, and although the prices of wood have gradually stiffened at the shipping ports in common with the costs of production throughout the world, it is no exaggeration to say that at least three-fourths of this extra outlay for wood-goods has gone into the pockets of shipowners, chiefly of Scandinavian nationality.

An illuminating comment on the effect of the war on prices is afforded in Messrs. Foy, Morgan & Co.'s annual wood report for the past year. The middle third of the year, May to August, witnessed a severe and rapid fall in prices, the difference between the highest and lowest reaching £7 to £8 per standard. This reaction was simply the result of a diminution in the amount of Government orders, and shows how highly sensitive a market becomes as soon as prices pass much beyond the limits of ordinary experience. "So largely is the market dependent on war work that it is to be feared," say Messrs. Foy, Morgan, speaking from the point of view of the timber merchant, "any cessation of Government orders in future will similarly precipitate a slump in prices, which therefore is likely to be the first, although not the enduring, effect of any serious approach to peace." From the point of view of the building trade this incident is comforting, because it indicates that the present inflated price of timber will not continue as an incubus after the war. The hope of the timber trade, of course, is that building and other timber-using industries will boom on the coming of peace and so maintain a high level of prices, but we are of opinion that other factors will prevent the sudden inflation of the unquestionable prosperity of building after the war to the level of a frantically feverish boom. Although we do not anticipate that timber prices will drop to the figures of 1913, we are confident that they will fall very far short of those of 1916.

Our confidence in this direction is supported by Messrs. Foy, Morgan's report of the timber trade in Finland during the past year, where sales have been made on f.o.b. terms for delivery after the war. Prices have ruled very low, and reports in the early summer mention £8 per standard as the price to be paid for battens reserved for shipment after the war. We may rely upon it that freights will slump with a rush when peace is declared, so that we are under no apprehension that timber prices will be at any sort of a figure to prejudice the activity of the building trade after the war.

As regards the immediate future there appears to be no question that the present enormous prices for softwood will be maintained, and even enhanced. The war activity will be more strenuous than ever this spring and summer, and the military demand for timber will be even more insistent than during the past year. In this connection there is also the evidence afforded by the ratio of import to consumption during the past year. All classes of softwood except rough boards and floated timber show consumption to have been greater than imports, most markedly in the case of pine and spruce, but fairly considerable in other classes.

We cannot promise ourselves that there will be any improvement in this respect for some time to come. The war demand will continue for a time at least to increase, freights will continue to rise, for most of the timber supply of this country comes over in neutral bottoms. The shortage of supply during 1916 approximately represents a loss of one-third of the annual supply in normal times. Hence prices are likely to exceed the present inflation of 140 per cent. rather than to show any tendency to return towards the normal.

Inasmuch as the cost of freight has been the principal factor in the rise of the price of timber to its present figures, it is easy to understand why Canada and the United States have not obtained a larger proportion of the export trade lost by Russia and now almost wholly absorbed by Scandinavia. Freights from Canada have soared as high as £20 per standard, whilst for the American ports sending us pitch pine the extravagant figure of £28 has been reached.

The import of Douglas fir has been very small, consisting almost entirely of parcels forming part of general steamer cargoes. The only timber cargo that has come

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in, exclusive of Government importations, was in a German ship. Silver spruce has been in great demand for Government purposes, especially aeroplane construction, but shippers find it difficult to maintain the high quality necessary. Plywood represents one of the few overstocked markets, largely of more or less damaged goods, and a large quantity is now lying unsold in the docks.

The import of mahogany and other hardwoods has been affected by the Government prohibition, and the only mahogany received in London for the open market has been about 238 tons from Mexico and about 192 tons from the West Coast of Africa. A quantity of mahogany has been imported during the year for purposes directly connected with the war, but no official figures regarding quantities are available. The import of cedar during the year has amounted to only 11 tons.

Teak imports in logs during the year have been principally from Bangkok, from which place over 1,700 loads have come to London. In planks nearly 1,400 loads have come from Rangoon, and nearly 700 from Bangkok. Moulmein has sent nothing and Java under 150 loads of planks.

New Zealand kauri pine and white pine have suffered from scarcity of freight space, and imports have been considerably below the amount required for consumption, hence stocks in hand are low and prices high.

NOTES AND COMMENTS.

WE noted some time ago in these columns the movement to establish commercial libraries in the large industrial centres, as an aid to business men in the reorganisation of British trade and industry, and this question formed the subject of discussion at a meeting of the North Central Library Association held at Leeds Town Hall last Friday. One of the obstacles to this movement was disclosed in the Lord Mayor's speech, when he suggested that such libraries would be useful to the small trader wishing to open out an export trade, but that such conditions did not prevail in the case of a house doing a regular export trade, because in that case the house had its own intelligence department, and obviously it was not inclined to give that information to those in competition with it.

Mr. L. Stanley Just, Deputy Chief Librarian of Manchester, very well countered the objectionable feature of this suggestion by urging that whilst the Lord Mayor had referred to large export firms and the privacy of their intelligence department, it was clear that in reorganising industry the old method of each one for himself would not do. It was foolish policy and bad business not to pool the general information, and he hoped and believed that the spirit of sharing information would grow. At all events it was difficult to see how they were going to collect and organise commercial information within the limit of particular industries unless there was a willingness to pool information.

The report of the Comptroller and Auditor-General on the Account prepared under the provisions of the Housing Act, 1914, for the period ended March 31, 1916, issued this week, shows that the total authorised issue from the Consolidated Fund is £2,000,000. During the year £20,700 and £724,000 was issued to the Local Government Board, Scotland, and the Commissioners of Works respectively, making, with a previous issue, a total of £844,700.

The Local Government Board, Scotland, entered into an agreement with the Scottish National Housing Company (Limited), an authorised society, for the erection of dwelling houses suitable for occupation by persons employed by the Admiralty at Rosyth. The Board provides by way of loan to the company, as the work proceeds, nine-tenths of such expenditure as is properly debited to the capital account of the company. The loans are secured by a cash credit bond, and the repayments will be spread over a period of 60 years.

The expenditure by the Commissioners of Works on the Woolwich Housing Scheme amounted in the year to £776,054—of which £700,603 was expended on the erection of buildings—making the total expenditure on the scheme to March 31, 1916, £806,660.

At a meeting of the Hull City Council last week the following letter from the Right Hon. T. R. Ferens, M.P., the High Steward of the city, was read, and so we hope that Hull may ere long possess an art gallery more worthy of the city than the present, which is much too small to accommodate all the works in possession of the Corporation. The letter reads:—

"My dear Lord Mayor,—Owing to the necessary Act of Parliament, it has become public property that I have purchased St. John's Church, in the City Square, with the intention of building thereon an art gallery and presenting it to the city.

"In view of the building restrictions, and the high cost of materials, in consequence of the war, the time is not opportune just now for building operations. I sincerely hope, however, that before long we shall have a satisfactory ending of the war, and that conditions now prevailing will be greatly modified, and that it may be possible, without protracted delay, to erect a gallery.

"I owe much to Hull, and as an expression of my gratitude it is a pleasure to me to hand you, as the chief magistrate of the city, the deeds of the site, and also a transfer deed of shares in Messrs. Reckitt & Sons, Ltd., the value of which at to-day's quotation is £35,000, for the erection of a gallery which will be worthy of the city, 'a thing of beauty,' an ornament to the City Square; and which I hope will prove a stimulus to the study of art amongst the young people of the city; a study which tends to elevate the mind. As has been said: 'The love of the beautiful is an instinct that we should cultivate and develop. The first sign of it is in the delight of the little child gathering buttercups and daisies.'

"The Art Gallery will also give to the citizens generally the opportunity of enjoying exhibitions of works of art of the highest order. It has been a source of great satisfaction to me that the existing Gallery, which has already become too small, has been so much appreciated by the public of Hull and neighbourhood.

"Let me express the hope that the wealthy and well-to-do men and women of Hull will encourage art by contributing first-class examples to the Gallery.—I am, yours very sincerely, T. R. Ferens."

Some very commendable principles were put forward in an address to the Glasgow Master Wrights' Association by Mr. W. H. Baxter on the subject of "The Training of Apprentices after the War." Commenting on the shortage of apprentices, which, in his opinion, would amount to 4,000 craftsmen at the conclusion of peace, Mr. Baxter said it was remarkable that at this time all interested in technical education, whether educationists or employers, were bestirring themselves with a view to a settled policy after the war. Only an awakening on the part of the employers to their responsibility for the production of technically trained craftsmen, and organised effort to educate the boys in continuation day classes, taken up from the age of 14, and an inclination to sacrifice something both of convenience and profit, would meet a very serious situation. Work in the building trade, unlike some other trades, was simply postponed, and vast schemes of housing and increased manufacturing facilities would inevitably make demands for increased production. The rate of wages was not of so much moment as the cost of labour, and the very kernel of their business was the efficiency of the craftsmen. The apprenticeship period should be reduced to 4 years beginning at 14, and the 19th year, into which inevitably would come some months of military service, should be an "improver's" year. The employer should

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insist, as a condition of all apprenticeship, continuation day classes, giving to each boy about 12 hours per week, mainly in vocational training, the course of tuition being co-terminal with the course of workshop training. Wages of boys should be increased, a percentage being paid at the close of each year on a certificate from an examining board that reasonable attention had been paid to class work.

At a recent meeting of the Society of Antiquaries of Scotland a paper was ready by Mr. James Ritchie, F.E.I.S., corresponding member, on "Some Stone Circles in Central Aberdeenshire," supplementary to the survey of Aberdeenshire circles made some years ago by Mr. Coles, by describing a few circles then omitted and supplying additional information about the others. The stone circle at Frendraught, Mr. Ritchie described as now very dilapidated, the original having been large and imposing, with about twelve stones on the periphery, and a diameter of 80 feet. Most of the stones, however, have been long ago removed. The stone circles at Candle Hill, Insch, and Tomnaverie, Tarland, have both suffered from the workings of adjacent quarries. A small circle at Ellon shows at the present time five stones, but of these three only are original. At Potterton, Belhelvie, are the remains of a circle consisting only of the recumbent stone and its accompanying pillars. Both the latter have fallen. At Peathill, Kinkell, all that remains of the circle is a single stone. At Cairnhill, Kintore, similarly only a single stone remains; a second which had fallen was quite recently broken up and removed. A circle at Fularton, Kintore, is represented by a single stone. At Chapel o' Sink, Fetternear, all that remains of probably a large double circle is the inner ring of small stones. At Nether Coullie and Tombeg, Monymusk, there are likewise only single stones to show where circles had been. Incidentally, Mr. Ritchie remarked that adjacent to the Tombeg circle there are still to be seen the remains of a whin mill, used in former days for crushing whins into pulp to make them suitable for feeding stuff for cattle.

The exhibitions branch of the Board of Trade has the arrangements well in hand for the holding of the British Industries Fair next month. It will be held partly in the Victoria and Albert Museum and partly in the great hall and certain galleries in the Imperial Institute Building from February 26 to March 9.

Many allotments of spaces have already been sent out, and nearly the whole of the remainder were posted this week. There are many more entries than last year, and the exhibiting space of the fair will be increased by about 12,000 feet. The space applied for has again been far in excess of the amount at the disposal of the Board of Trade, and therefore, all applications have had to be cut down by 30 to 50 per cent., and some of the large ones even more. Late applications, of which there were between 20 and 30, could not be entertained.

ILLUSTRATIONS.

WHITLEY AND MONKSEATON U.D.C. CEMETERY BUILDINGS.

WE this week complete our series of illustrations of this work, by the late Mr. Edward Cratney, of which general views and a description appeared in "The Architect" on January 5.

Our readers will notice that the Chapel is planned so that the Mortuary is isolated, yet in full view of the mourners.

The symbolism running through the whole scheme of decoration is intended to dwell on the beauty and restfulness of what we are accustomed to call "Death," rather than the fearsome aspect of it.

THE death has occurred at the age of seventy-nine of Mr. Edward Timmins, Hales Owen, who for nearly half a century was actively identified with the Black Country building trade.

R.I.B.A. CONFERENCES.

THE Council have favourably considered the suggestion made by Professor Lethaby at the opening meeting of the Session (see "The Architect," November 10, page 288), and have arranged for a series of conferences to be held at the Institute on subjects of interest to architects and of importance to the public. The conferences will be held on Wednesdays at 3.30 P M. at fortnightly intervals, beginning Wednesday, January 24. The following is a list of subjects and dates so far as at present arranged, together with the names of the openers of the discussion and Chairmen of the meetings:—

January 24.—"Architecture and Civilisation." Opener, Professor W. R. Lethaby (F.); Chairman, Mr. F. W. Troup (F.).

February 7.—"Education of the Architect." Opener, Mr. Robert Atkinson (F.); Chairman, Mr. Reginald Blomfield, R.A.

February 21.—"Education of the Architect" (continued). Opener, Mr. A. E. Richardson (F.); Chairman, Mr. H. V. Lanchester.

March 7.—"The Control of Street Architecture." Opener, Sir John Burnet, R.S.A., LL.D. (F.); Chairman, Sir Aston Webb, K.C.V.O., C.B., R.A. (F.).

March 21.—"New Materials and Methods as influencing Design." Opener, Mr. H. D. Searles-Wood (F.); Chairman, Mr. E. Guy Dawber (F.).

Many well-known architects have consented to take part in the Conferences, and the Council hope that there will be good attendances of members.

ZINC.

ITS MICRO-STRUCTURE AND UTILITY.

Written and illustrated by James Scott.

THE value of zinc in many directions is fully realised by readers of this Journal, notwithstanding the limitations of the metal when compared with some other kinds. In connection with roofing, for instance, it has merits of an unsurpassable character, being practically non-corrosive and impermeable. There is no need, however, for me to cite the industrial uses to which it is applied, so I will describe its technical details.

The chief ore from which zinc is derived is zinc blende, also called sphalerite. This is a sulphide or compound of the metal and sulphur. Calamine, or zinc spar, a carbonate (*i.e.*, a compound of carbonic acid and the metal), is of secondary importance in this respect. More complex ores are franklinite, willemite, and zincite. Chemical, smelting, and electrolytical methods are practised in the extraction and refining of zinc, which, in the ingot form, is known as spelter. A copper-zinc alloy is also called spelter.

Although whole zinc is rolled into sheets for roofing purposes, large amounts of galvanised iron of a corrugated kind are also used in the same way. It was about the year 1840 that galvanising came into general use. This process is accomplished by means of dipping sheet iron into a bath of molten zinc. The iron is first thoroughly cleaned by being pickled in acid and scoured with sand, or in other suitable ways. A layer of ammonium chloride floats on top of the fluid metal to act as a flux. This medium prevents the oxidation, or rusting, of the zinc, and allows it to settle with all possible evenness and smoothness on the iron.

Zinc is electro positive to iron, hence the name galvanising, which has been founded on the principles of galvanism, or galvanic electricity, and named after Galvani, its discoverer.

The iron is not likely to wear out, either chemically or mechanically, until the zinc has done so. The contacting surfaces of iron and zinc really become alloyed; otherwise the cooled zinc would be liable to peel off and leave the iron bare. So effectual is this combination that the steel tanks in which the molten zinc is contained are gradually reduced, and yield their substance into the fluid metal, thereby rendering the latter less valuable, because iron and zinc, when blended, tend to become very friable. The alloyed iron-zinc floats to the top of the

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bath, and thus is more available for spreading over the iron sheet as it is withdrawn. When the pure zinc actually dissolves a film of the iron sheet against which it lies only benefit results, as cooling and hardening maintain all particles intact. But if the fluid zinc already contains iron the work may be spoilt. The tanks have, for this reason, to be periodically renewed.

Freshly galvanised sheet metal generally displays a curious figuring, which would ordinarily be called a frost pattern. Patches of light and dark shades intermingle with one another in a very peculiar manner. When any portion of the surface is examined with a strong reading lens the details can be seen to run in between each other in a very pretty arrangement, which varies considerably. Upon greatly magnifying this film many parts of it are seen to be of the kind shown in fig. 1.

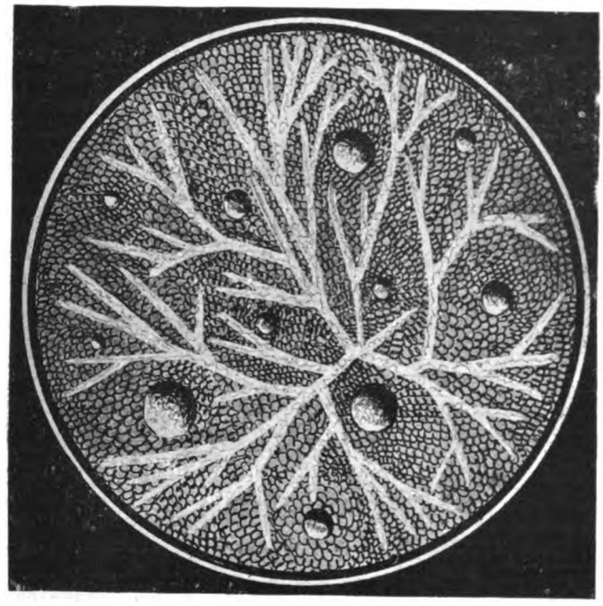


FIG. 1.—Magnified surface of zinc on iron (galvanised), the actual diameter of the space being about $\frac{1}{4}$ inch. It consists of globules and tuft-crystals springing from a very minutely granular base.

Corrugated galvanised sheets are prepared by passing the flat metal between pairs of rigid rollers, the contours or outlines of which are waved like cog-wheels. As the substance travels through the space, the ridges or projections of one roller press into the grooves or hollows of the other, and modify the metal correspondingly.

Zinc is ductile between 100° C. (212° F.) and 150° C. (302° F.), and can then be shaped as required. But when either above or below these limits it becomes brittle and unpliant, and, therefore, not adapted for treatment. This is a very remarkable fact. It melts at about 419° C. (786° F.), if volatilisation is guarded against. An alcohol flame is preferable for this experiment or test.

All metals crystallise, and when satisfactorily dealt with yield definite geometrical objects, usually of small calibre. When they are completely molten there is, of course, no structure; but immediately the cooling sets in little crystals appear, join together, and produce outer crusts which enclose the still-liquid metal. This continues to get filled up like that previously stiffened. During this change softer portions are forced into the interstices between the first crystals and adapt themselves to their surroundings. In final solidification the bulk is permanently fixed, in a certain sense; but alterations are capable of arising in some circumstances, due mainly to exterior influences. The effects of slow cooling and rapid cooling vary considerably.

The true crystal of zinc belongs to what is known as the hexagonal system, and when a perfect object of this kind is obtained it has the appearance of two six-sided pyramids fixed base to base, the outline of the entire crystal, seen in profile or sideways, being rhombic. Owing to influences which it is impossible to control, it is only rarely that a typical, perfect crystal can be obtained. We may sometimes know that they are embedded in the accompanying metal, but they cannot be satisfactorily freed therefrom, as to remelt the irregular metal means doing the same to them. Extraordinary trouble has to be taken to secure worthy specimens. Still, this structural fact enables us to understand the character of the metal as we find it in everyday use.

If the whole proper crystal is cut crossways at any part it will disclose six-sided planes or facets, and figures of this kind are common in zinc, showing incomplete crystallisation. Interferences during cooling and solidification cause cramped or distorted results, so that many angular grains accumulate, as shown in fig. 2. The more regular the final crystals happen to be the tinier are the separate particles of which they are composed.

Eddies and currents habitually occur in melted metals, and these modify the settlement while they are solidifying.

If the outside of a molten mass is suddenly cooled, the crust thus formed shrinks and becomes consolidated, thus giving the internal fluid portion greater facility for resolving itself into well-made, distincter, and more isolated crystals.

The minutest particles of zinc are like mere dots or globules of the element, many thousands of which occupy, superficially, an area equal to that of an ordinary pinhole. Among themselves, however, the range of sizes varies very much, so that some specks in a particular part are many times larger than their neighbours; and yet all are absolutely invisible, except in bulk, to the naked eye. The atoms—I use the word popularly, not scientifically—are themselves modelled into groups which present the crystalline and kindred features already dealt with. It is as though we had myriads of little soft marbles which could be built up into all kinds of formations, and could be pressed together so closely that they lost their spherical shape and only disclosed the design of the mass. Intermediate stages are shown in fig. 3, where whole crystallisation has been stopped by foundry treatment.

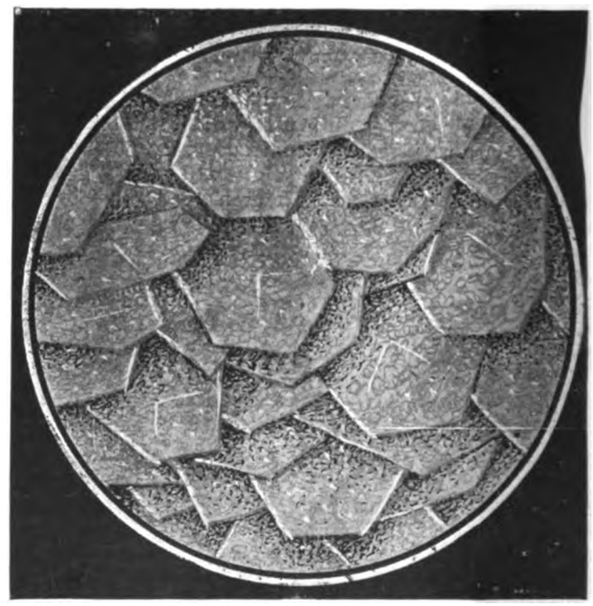


FIG. 2.—Magnified crystalline surface of zinc, the actual diameter of the space being about $\frac{1}{4}$ inch. It consists of intermingled planes denoting the outsides of coherent granules.

When zinc is heated to about 1,040° C. (1,904° F.) it burns with a blue flame, and is resolved into white, woolly flocks which are so light that they float in the air for a long time like delicate bunches of fibres. This is the oxide, and, when specially prepared and collected in large chambers, it becomes the pigment zinc white (some-

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times called Chinese white), which serves as the basis for a special white paint. These flocks can be obtained by dropping pieces of zinc on to a red hot poker.

Zinc, when exposed to the atmosphere, rains, and climatic changes slowly oxidises on the surface, but the white or greyish resultant film acts as a protection against further corrosion, hence its great utility. But careless handling, by slightly fracturing it in some places, is apt to allow internal spoliation to commence.

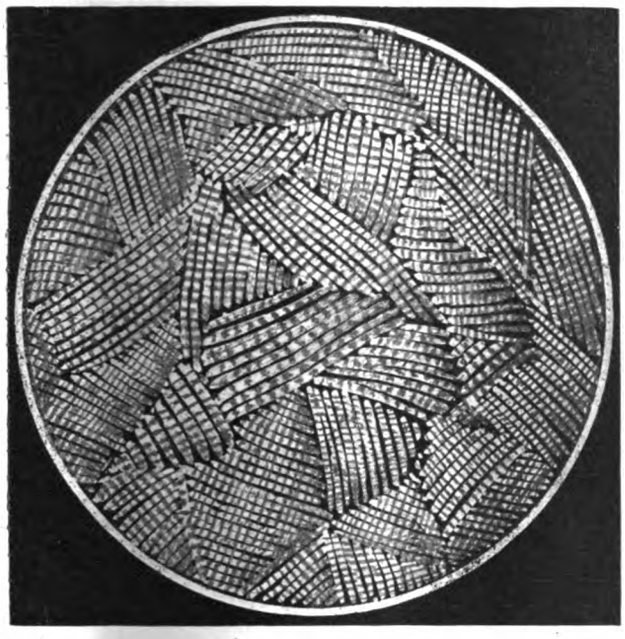


FIG. 3.—Magnified dendritic surface of zinc, the actual diameter of the space being about $\frac{1}{24}$ inch. It consists of points or elevations, and denotes a high grade.

The red rusty patches which are often observable on galvanised sheets do not reveal a corrosion of the zinc, but of the iron exposed through the wearing off of the zinc. As just explained, the rust of zinc is white, or grey when not entire. When this is dislodged, the under zinc begins to disintegrate, and a continuance of this action results in the iron being bared. Then the iron corrodes.

It is a bad practice to fasten zinc-iron sheets together with iron or steel rivets. These soon rust if not painted, and the rust penetrates through the edges of the iron encircling the rivets, and thus proves disastrous. Only zinc, or zinc covered rivets, should be so used.

ARCHITECTS RETURNING AFTER THE WAR.

THE Council of the Architectural Association has recently considered a report containing suggestions for dealing with the requirements of members of the profession returning after the war, which it has, in substance, approved.

In the following brief résumé of the report, full details of the proposals are not given as they are still under consideration, but the preliminary information is published in the "Architectural Association Journal" so that members of the profession may know that the matter is being dealt with. Suggestions from members will be welcomed by the Council.

The Council recognises that it may be some time before it is necessary to put the scheme into operation, but it feels strongly that the matter should be dealt with immediately so that arrangements should be perfected in readiness for such time as they are required.

RÉSUMÉ OF REPORT.

As far as can be conjectured at the present time, it would appear that immediately after the war the architectural profession will experience a period of considerable activity as a result of the inevitable desire to push forward, with as little delay as possible, building schemes which have been postponed during the war. From all sides one hears in the profession of work which is to be proceeded with immediately conditions allow, and although there may be a certain amount of delay in building, owing to congestion in the manufacturing trades and so on, it may be fairly assumed that the architect himself will be able to proceed with his part of the work almost as soon as peace is declared.

During the war the normal annual influx of young assistants to the architectural profession from the schools and by pupilage has ceased entirely, and the number of assistants who have fallen in the war will affect the profession to a marked extent.

Briefly, then, at the end of the war, whilst there will be an accumulation of some years' delayed work to be proceeded with, the number of assistants will be less than it was before the war, when there was work for all.

Whether these assumptions are justified or not, the following suggestions for dealing with the return of architects' assistants after the war may be of value. They deal with:—

1. Providing facilities for assistants to be brought into touch with would-be employers.
2. Helping the temporarily disabled and unfit.
3. Helping those who, as a result of the war, find themselves totally disabled from following the architectural profession further, and assisting to become qualified architects those disabled from following other callings.
4. Providing means for those who desire it to recover such architectural proficiency as they may have lost whilst serving.

The A.A. has always kept a Bureau for unemployed assistants which has been recognised by practising architects as a centre from which they could obtain assistants. During the war, the rule that only members of the A.A. when unemployed could use the Bureau has been waived, and it has been opened to the profession generally. It is suggested that this arrangement continue to be in force for such period after the war as may be determined. It is suggested that the scope of the Bureau be widened, and that it be given some such title as "The A.A. Employment and Information Bureau for Architects returning from the Army." Its scope should not be limited in any way, but it should be allowed to develop as experience showed to be necessary. As the A.A. War Service Bureau has been, since the commencement of the war, the recognised centre for assisting members of the profession in Army matters, so should the proposed new Bureau be available for any architects' assistants seeking advice and assistance on any matter connected with the return to civil life.

In practice, it will probably be found that most of the applicants to the Bureau will come under categories 1, 2, 3, and 4, and the following proposed schemes for dealing with them are put forward.

1. *Providing Facilities for Assistants to be brought into touch with would-be Employers.*—A register of disengaged assistants should be kept, and also a register of architects requiring assistants, arrangements being made, if possible, to work in conjunction with the provincial societies, who would also be able to consult the Bureau on behalf of any of their members coming within either categories 2 or 3. Information should be collected as to openings in the Colonies and abroad, and assistance especially should be given to those who are compelled to seek another climate on account of broken health.

2. *Helping the Temporarily Disabled and Unfit.*—There will probably be a number of assistants at the end of the war who, for some time, through various disablements and nervous disorders, will not be capable of taking up the full duties of an architect's assistant, but who at the same time will be able to follow a light employment, and who, indeed, will benefit by so doing. To meet such cases, it is suggested that a drawing, tracing, and photo-printing office should be formed, which should undertake all such work as commercial offices of this nature usually undertake. Such an office would undoubtedly, in the first instance, need subsidising, but in a short time it should pay its own expenses, and provide a fair wage to

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all employed. Profits, if any, could be given to benevolent schemes in connection with the profession. It should be managed on business lines as far as practicable, but its object would be defeated were not a certain amount of latitude allowed to those employed. Probably, therefore, a small committee of, say, not more than three, should have the control of the affairs, and should be the arbiters upon who should, or should not, be employed, and what wages should be paid. Under the committee, a paid manager (himself a disabled soldier) should be appointed. There is no reason why such an office should not be a permanent institution, as there should be, even in the slackest times in the profession, no difficulty in keeping it supplied with work, and in any time of acute unemployment in the future it would be a very useful means of providing work.

3. *Those totally disabled who are prevented from following the Architectural Profession further.*—There will be probably very few coming under this category who will need to consult the Bureau, as there are already many institutions in existence for re-training the disabled according to their abilities, but at the same time, as the A.A. has done so much to encourage members of the profession to join the Army, it would seem that it is its duty to be prepared to help any who, through their service in the Army, are compelled to give up the profession for other work. The Bureau should collect all information about re-training schemes, so that such information should be ready at hand for anyone in the profession needing it, and the A.A. should use its influence to get the best possible training and help for those consulting it. It should also co-operate, where practicable, with the various training committees in assisting men from other callings who wish to train as qualified architects.

4. *Those who desire to recover such Architectural efficiency as they may have lost while serving.*—The question arising under this category is closely connected with the problem of providing for the needs of members of the profession returning from the war, although, perhaps, it is one for the A.A. to deal with as an educational body rather than the proposed Bureau. It is suggested that arrangements be made to help those who wish to be "coached" up again in professional matters, after three or more years' absence from the architectural world.

WATER SUPPLY OF ANCIENT ROME AND NEW YORK.*

By W. J. E. BINNIE, B.A., M.Inst.C.E., F.G.S.

(*Continued from last week.*)

THE next aqueduct to be undertaken was that called Marcia, constructed in 144 to 140 B.C. The old aqueducts had become leaky, and Marcius, who was then Prætor, was instructed by the Senate to restore them to usefulness and to protect them and also to investigate for an auxiliary supply, which had become urgent owing to the growth of population. He reported in favour of the aqueduct which bears his name, and the Senate appropriated 180,000,000 sestertii, or about 1½ million sterling for its construction. This was the first great aqueduct, and the proposal for its construction gave rise to a good deal of controversy. The opposition secured the support of the Board of Ten, to whom was entrusted the Sibylline Books, who stated that they had found that it was not right for the Marcian waters, and still less for those of the River Anio, to be brought into the Capitol. However, the popularity of Marcius Rex carried the day, public necessity triumphing over religious prejudice. The Marcian springs are celebrated, and supply water to Rome to-day. They are described in these words by Frontinus: "Numberless springs gushed forth from caves in the rocks immovable like unto a pool and of a deep green hue." Shakespeare, in Coriolanus, Act 2, Scene 3, makes Brutus refer to these springs and the aqueduct. The total length of this aqueduct was sixty-one miles, although its distance from Rome was only thirty-two miles, owing to the fact that it contours in and out of the valleys. The springs are 900 feet above the point of delivery at Rome, where the water enters at an elevation of 195 feet above sea level, and a length of about seven miles was constructed on arches or masonry substructure. The waterway of the Marcian Aqueduct varies from 47 square feet to 21 square feet. The new aqueduct which conveys these springs to Rome is called Acqua Pia, in honour of Pope Pius IX., and, as reconstructed, is only thirty-three miles in length owing to the use of cast-iron pipe syphons.

Tepula was the next aqueduct to be undertaken in the year 127 B.C., and conveyed to Rome a volcanic spring rising on the slopes of Monte Albari. The length of this aqueduct is about twelve miles, with a waterway of 9 square feet, and it is carried on top of the Marcian Aqueduct, where it enters Rome.

The construction of the Julian Aqueduct followed ninety-two years later—i.e., in 35 B.C., its total length being over fifteen miles, of which seven were above ground. This, again, was spring water, and the aqueduct entered Rome on top of Tepula, so that the arches of the Marcian Aqueduct now carry two others superimposed. Frontinus mentions that near the intake is a brook called Crabra, and that Agrippa the Aedile, who was responsible for the construction of the Julian Aqueduct, "disdained to take in this brook either because he did not consider it of good quality or because he thought he was under obligations to leave it for the use of the proprietors at Tusculum, for it is the same which is distributed by turns on fixed days and in determined quantities to the estates of that part of the country." The watermen, however, had made unauthorised connections to the aqueduct before it reached Rome for the benefit of certain proprietors, and in order to keep up the flow they had included this stream. Frontinus cut off the Crabra and all unauthorised connections, and notes with satisfaction that the Julian Aqueduct had regained its normal flow notwithstanding the loss of the stream water by reason of the destruction of the branch pipes through which it was secretly despoiled. He mentions that Agrippa rebuilt in the same year the nearly ruined aqueducts of Apia, Anio Vetus, and Marcia. The waterway of Julian was about 10 square feet, and it entered Rome at an elevation of 212 feet above sea level. The temperature of the Julian springs, which had three times the volume of the Tepula spring, was 50° F., and the two waters were mixed in order to reduce the temperature of the latter.

Thirteen years after the construction of this aqueduct it was again necessary to augment the water supply, and Agrippa in 19 B.C., constructed the aqueduct called Virgo, Frontinus stating that it owed its name to a young girl who showed the springs to some soldiers who were looking for water. The springs were gathered together on the estate of Lucullus, and Frontinus writes: "The spring is increased by being walled in with a wall of concrete made of broken pottery and lime so as to keep together the primary sources." These springs are only a short distance above the intake of the Appian Aqueduct, and were, like them, in the valley of the Anio, and they were brought into Rome at a low level, as the springs are only about 80 feet above sea level. The waterway was about 10 square feet, and the total length of the channel fourteen miles, of which a little more than one mile was carried above ground.

The next aqueduct to be constructed was made by Augustus about 10 A.D., and was called the Alsietinian. I cannot do better than to give you a translation of the actual words of Frontinus, as showing how well the Romans appreciated the value of a pure water supply.

"I do not rightly perceive the motives which caused Augustus, that most cautious ruler, to bring in the Alsietinian water, called Augusta, since it has nothing to commend it, and is, on the contrary, so unwholesome, that on this account it is delivered nowhere for the use of

* A Presidential Address delivered before the Institution of Sanitary Engineers.

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the people, unless it be that when he undertook to construct his Naumachia he brought in this water to avoid drawing upon the better sources of supply and left the surplus of the Naumachia for the adjacent gardens and for the use of private parties for irrigation. It is customary, however, to draw from it in emergencies, and thus to eke out the supply of the public fountains in the ward beyond the Tiber whenever the bridges are undergoing repairs, and no water can be delivered on this side of the river."

The Romans were very fond of spectacular displays of all descriptions, including mimic sea battles, and the Naumachia was an artificial basin constructed for the purpose of these displays. The Lake of Alsietina is about 685 feet above sea level and about twenty miles from Rome, the water reaching the city at about 55 feet above sea level, the total length of the aqueduct being about twenty-two miles, of which about 1,500 feet was above ground level. The waters now supply the fountains in front of St. Peter's.

The water supply again proving insufficient, two aqueducts were put in hand in 33 A.D. the Claudia and the New Anio. The former aqueduct took in several well-known springs, all situated in the Anio valley—the Cærulian (so called from its beautiful blue colour), the Curtian spring, and another spring called Albudinus—and the spring of Augustus was so arranged that it could either be included in the Marcian Aqueduct or the Claudian. Claudia has a waterway of 22 square feet, and marks the highest development of Roman skill in hydraulic engineering. It follows the same general course as the Marcian Aqueduct, but takes a short cut by means of a tunnel about three miles long under Mount Affliano. The construction of this tunnel must have been a very tedious affair owing to the lack of explosives. The contract was let to a certain Paquedios Festus, and he evidently realised he had taken on a tough job, as he vowed to build a temple if he succeeded, and the ruins of a temple on Mount Affliano are supposed to be those of the actual temple built to commemorate the completion of the tunnel in 88 A.D. While on the subject of tunnels, Lanciani records some amusing correspondence with regard to a tunnel being constructed in Algiers about 152 A.D.

"Varius Clemens, Governor of Mauritania, to Valerius Etruscus, Governor of Numidia:

"Verius Clemens greets Valerius Etruscus and begs him in his own name, and in the name of the township of Saldae (Algeria) to despatch at once the hydraulic engineer of the Third Legion, Nonius Datus, with orders that he finish the work which he seems to have forgotten."

Report of Nonius Datus to the magistrates of Saldae:

"After leaving my quarters I met with brigands on my way, who robbed me of even my clothes, and wounded me severely. I succeeded after the encounter in reaching Saldae, where I was met by the Governor, who, after allowing me some rest, took me to the tunnel. There I found everybody sad and despondent; they had given up all hopes that the two opposite sections of the tunnel would meet because each section had already been excavated beyond the middle of the mountain, and the junction had not yet been effected. As always happens in these cases, the fault was attributed to the engineer, as though he had not taken all precautions to insure the success of the work. What could I have done better?

"I began by surveying and taking levels of the mountain; I marked most carefully the axis of the tunnel across the ridge; I drew plans and sections of the whole work, which plans I handed over to Petronius Celer, the Governor of Mauritania; and to take extra precaution, I summoned the contractor and his workmen and began the excavation in their presence with the help of two gangs of experienced veterans, namely, a detachment of Marine Infantry and a detachment of Alpine troops. What more could I have done? Well, during the four years I was absent at Lambaese expecting every day to hear the good tidings of the arrival of the water at Saldae, the contractor and his assistant had committed blunder upon blunder. In each section of the tunnel they had diverged from the straight line, each towards his right, and had I waited a little longer before coming Saldae would have possessed two tunnels instead of one."

The Claudian Aqueduct, on reaching the Campania, carries Anio Novus above it on a series of arches having a span of 20 feet, the thickness at the crown being 3 feet, the sides of the aqueduct being built of dimensioned stone in four courses 18 inches deep, and the piers being about 8 feet thick. The Porta Maggiore is built where the aqueduct crosses the ancient Via Prænestina, and the inscription states that Tiberius Claudius caused the water from the springs Cærulian and Curtian to be brought from 45 miles away and the Anio Novus from 62 miles away. Just below it it is recorded that Vespasian nineteen years later restored the aqueduct to usefulness and that Titus, Vespasian's son, had to do the same thing ten years after that date. Within the city the aqueduct was carried on the Neronian arches, very good specimens of Roman brickwork, to the Cælian Hill. From this point Domitian in A.D. 90 carried the water by means of a lead pipe syphon 12 inches in diameter under a head of 140 feet, but the syphon was afterwards replaced by an aqueduct by Septimius Severus in A.D. 195. The level at which the water reached the Porta Maggiore was about 230 feet above O.D., the total length of the aqueduct being about 47 miles, of which over ten miles was carried above ground.

The aqueduct called New Anio drew its supply from the River Anio, which, to quote Frontinus, "flows muddy and discoloured even without the effect of rainstorms, because it has rich and cultivated lands adjoining, and, as a result, loose banks. For this reason a settling reservoir was built upstream from the intake so that in it and between the river and the conduit the water might come to rest and clarify itself. But in spite of this construction, the water reaches the city in a discoloured condition whenever there are heavy rains. The Herculanean Brook, which has its source on the same way, at the thirty-eighth milestone, opposite the springs of Claudia and beyond the river and the highway, joins it, being of itself exceedingly clear, but losing the charm of its purity by admixture."

The total length of this aqueduct is 58 miles, of which over nine miles are carried on arches, the waterway being about 30 square feet. This was the most recent aqueduct existing at the time of Frontinus, and he concludes his description of the aqueducts by saying: "Will anybody compare the idle pyramids or other useless though much renowned works of the Greeks with these aqueducts?" All the aqueducts with the exception of Virgo, Appia and Alsietina were provided with settling basins in which the water could deposit its sediment before reaching the city. We see, therefore, at the time of Frontinus that there were nine aqueducts supplying the city, having a gross length of over 286 miles and an aggregate waterway of about 160 square feet, and that their construction had extended over a period of 350 years. The aqueducts entered the city at levels varying from 230 feet to 50 feet above sea level, supplying different zones, and some of them interchangeable, so that the water from one aqueduct could be made to supply the district ordinarily supplied by an aqueduct under repair. Six aqueducts brought in pure spring water, two the waters of the River Anio and one lake water, which was admittedly impure and was not used for drinking purposes. The hills surrounding Rome are limestone (?), and hence there were abundant springs in the valleys which could be drawn on for a supply. The water, however, was a very hard one, and tended to block up the aqueducts, and more especially the lead distribution pipes, with deposit. The Romans had, of course, no accurate tests for establishing whether a water was good or bad, but they looked to its clarity and the absence of unpleasant odour after boiling as establishing its potability. Private filters may have been employed, as vessels have been found which suggest that they may have been utilised for this purpose.

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Many estimates have been made of the discharging capacity of these aqueducts, but unfortunately their hydraulic gradients have not been properly established, and the figures given vary enormously. Herschel estimates that the probable discharge of all the nine aqueducts taken together amounted to about 84 million gallons per diem, of which quantity about 29 million gallons or a little over one-third was river water, the rest being made up of spring water. Frontinus had no clear conception of the fact that the velocity of flow had to be taken into consideration as well as the area of cross section in determining the discharge, as he frequently makes comparisons of the quantity of water discharged by considering the area of cross section only. Hero of Alexandria, who wrote long before the time of Frontinus, had quite clear views on this subject, as he writes:—

"Observe always that it does not suffice to determine the section of flow to know the quantity of water furnished by the spring. This, we said, was twelve square digits. It is necessary to find the velocity of its current, because the more rapid the flow the more water the spring will furnish, and the slower it is the less it will. For this reason, after having dug a reservoir under the stream, examine by means of a sundial how much water flows into it in an hour, and from that deduce the quantity of water furnished in a day. Thus one has no need to measure the section of the stream. The measure of time alone suffices to make evident the flow of the spring."

This is not so much to be wondered at when we consider that even to-day people talk of a flow which a two-inch or other sized pipe will take. The method of measuring water used in ancient Rome was to fix in the cistern or aqueduct a bronze nozzle of known diameter which was stamped, and the flow through these orifices was supposed to be according to its area. To these nozzles were attached the lead distribution pipes, which were not to be less than 50 feet long, but, of course, the actual quantity delivered would depend on the length of the connection and the relative level of its point of termination and the water in the aqueduct. This system survives even to-day in Italy, where water is sold by fixed aperture, the unit being called the "oncia," which is a fixed discharge from a pipe of 800 litres per hour. This method of measuring water gives rise to many anomalies, and, in fact, the quantity actually delivered from these orifices varies within wide limits and often bears little relation to the amount paid for the discharge. The aqueducts were frequently interfered with by influential people outside the city, who diverted part of the flow for their own use, and those portions of the aqueducts which were carried on arches or masonry substructures, being subjected to great changes of temperature, rendered frequent repairs necessary. We find from various inscriptions records of the repair of Appia three times, Marcia four times, Anio Vetus three times, Virgo twice, Claudia four times, and Anio Novus twice. Herschel took this fact into account in arriving at his estimate of the discharge, but even with his estimate the population of Rome at the time of Frontinus received a quantity of water per head of population at least as great as that of London to-day.

Frontinus gives a mass of information with regard to the method of distributing water within the city. From the Castellum, which was the name given to the cistern or tank in which the aqueduct terminated, lead pipes were conducted to supply the various private and public fountains, washing basins, &c., the pipes being frequently of great length. At Genoa to-day may be seen a Castellum still in use in which terminates the ancient Civic Aqueduct, and from which start lead pipes wandering all over the ancient city to supply public fountains and private consumers who have a perpetual right to the water. The number of illicit connections when Frontinus took up office was very great, and he soon set himself to put matters right. About 700 men were constantly employed on or about the aqueducts, so great a number pointing to a large amount of continual repair work. Under him was a Deputy Commissioner, several architects and secretaries, two Lictors or special policemen, public criers, orderlies and slaves. Among this last class I find that the levellers and notebook keepers were included. The rights to take water were granted by the Emperor, and were called "Beneficia Cæsaris," and the money payments for these rights brought in an annual sum of about £10,000 sterling. Here is a translation of Martial's application to Cæsar Domitian for a water supply:—

"To Cæsar Domitian.—I own, Cæsar, and may it long be under thy reign, a little villa and a modest city hearthstone. But it is by force of arms and by operating a pump handle that we draw from a narrow well the water needed by my suffering gardens. Thus it happens that while my domicile complains of not receiving a drop of moisture, I yet hear the murmur of my neighbour Marcia's stream. Any permit that thou mayst grant to my household, Augustus, will be to it like the waters of Castalia or as the showers of Jupiter."

The water grants were given to the individual, and did not pass to the estate or to his heirs.

In Roman times the lack of suitable metals from which to construct pipe syphons on a large scale compelled them to adopt a form of aqueduct which followed the hydraulic gradient, and the only material difference between the works carried out by them and the works of to-day lies in the substitution of cast-iron or steel pipes for lengths of the aqueduct carried on arches to cross the valleys which intersected their course.

(To be continued.)

THE ORGANISATION OF TRADES.*

By ERNEST J. P. BENN.

My mission is a very simple one. It can be expressed in a sentence. It is to plead for the organisation of the trades of this country in such a way that the three parties interested—(1) The State; (2) the workman; (3) the capitalist—may be able together to develop them to their fullest extent.

Trade is a very large subject, far too complex for any one mind to grasp properly. It is a subject in which one can very easily become lost in detail. The problems of trade cannot be solved by a few deputations to Ministers, or even by the 102 Committees which the Government are reported to have appointed. They call for the establishment of powerful and permanent machinery—machinery conceived upon a big plan. There are 28,678 local authorities in the United Kingdom to attend to sewers, cemeteries, street lights, and other such details. Surely trade is worth at least as much attention.

I am interested to promote the organisation of our trades under the protection of the State.

In inviting attention to such questions as output, foreign competition, tariffs, labour, wages, profits, exportation, economical production, or any of the numerous aspects of the trading problem, I do so, not to dogmatise upon them, but only to insist that these problems are not capable of solution by politicians or newspaper writers, and to emphasise the need for the creation of the proper authorities to deal with them.

The Interests of the State in Trade.—Before considering the relations of the Government to trade and industry it may be convenient to inquire what is it that the nation wants from trade. We have got into the habit of giving the whole of our mind to side issues like Free Trade and Protection, or work and wages, and it seems to me that we have now to go back a little and consider the primary interests of the nation in industry.

If we take as an example the boot trade—I select boots because I know nothing about them—if we look at the boot trade from a national point of view we find:—

A few hundred so-called masters, representing a few millions of capital, at present in control of the trade.

* Abstract of a lecture to the London School of Economics, Thursday, January 18, Sir William McCormick, M.A., LL.D., in the Chair.

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Next there is a much larger body of managers, salesmen, accountants, travellers, shippers, and wholesale and retail shopkeepers.

And last and most important, an army of operatives engaged in the actual work of manufacturing boots.

Looking at the matter from the national point of view only, the best things that can happen are:—

That the maximum quantity of boots should be produced.

That the proportion of boots to population should be high.

That the largest possible number of pairs of boots should be sent abroad.

Next we arrive at a number of secondary considerations, such as foreign competition, involving questions like tariffs, and wages and profits, which are domestic questions as between the different persons in the trade. But the first essential is the production of the maximum quantity and adequate arrangements for the disposal of that production, a problem which, so far as I am aware, has never attracted the interest of the politician or of the Government.

A further study of the boot industry will show that the small body of masters are able to withdraw their capital and stop production altogether if it suits them to do so. On the other hand, the operatives can call a strike with the same result. Either of these parties may so act as to send the industry, lock, stock, and barrel, to Germany or America. This sort of thing has happened many times.

I suggest that it is the duty of the Government to make such arrangements that this nation shall occupy a proper place in the boot world. I submit that the maintenance of output in boots, as in everything else, is a proper matter for the consideration of the Government.

The work of the Government in assisting trade and industry should take the form of organisation, direction, or control, rather than of direct intervention in actual trading transactions. The Government should encourage the activities of traders, and not attempt to compete with them.

There is a general outcry at the present moment for Government assistance in connection with trade. The commonest form that this demand takes is a call for a Minister of Commerce. The answer of the Government to this outcry is the appointment of great numbers of little Committees, all lacking in representative character or authority, and each attempting to deal with some little detail.

The present position is admirably summed up by the authors of the "Elements of Reconstruction":

We are going about the business of our national future like a family which is acquiring an automobile by sending father out to get some sort of good engine, it doesn't matter what, mother to back her fancy in carburettors, Frankie to get acetylene headlights, Bertie to buy wheels, and Georgie to buy tyres, regardless of each other and the weight and size of the whole, leaving the rest of the equipage to happen somehow, while sister Beatrice sits at home inquiring into the respective merits of the petrol and the steam engine, and Caroline looks through the accounts to find out whether the family can afford to set up a car of any sort at all. . . . Economic reconstruction must be a general act. It is an idle dream, and all too prevalent a dream, to suppose that any great economic reorganisation can be brought about by quiet meetings of bankers and big business men and unobtrusive bargains with Government departments.

Our trade and commerce is the only part of our national life which is not organised upon a representative basis. There are vast stores of energy, ability, and genius in business, half of which is now wasted owing to lack of cohesion and organisation. The Government must take the initiative, and must learn to think in hundreds of millions and ignore details. It should not dabble in trade any more than it dabbles in local affairs. In trading matters the Government ought to prescribe and not dispense.

Trade Associations in the United Kingdom.—There has been an enormous growth in the trade association movement during the last twenty years, and there are now very few trades and industries which do not possess at least one association. In many cases the position is complicated by the presence of two or more bodies, each purporting to represent the same industry.

These associations can be divided into two chief classes. First, there are those like the Chamber of Commerce, which is concerned with all trades; and, secondly, the particular trade association which deals with the interests of one particular industry.

Chambers of Commerce, federations of industry, and other similar bodies are not included in my present argument. They live almost entirely upon politics; their existence to-day depends upon the tariff agitation; they have, in my judgment, no place in the serious study of the development of trade efficiency or the increase of the national output. Successful organisation of trade can only be accomplished by dealing with each trade separately.

When we come to study the trade associations proper we find some thousands of bodies with very varying objects. At the head of the list should be placed a group of strong societies which I class together as Price Associations, existing admittedly for the simple purpose of the regulation of prices.

The next most important series consists of associations which have their being simply for the purpose of fighting labour. After these come a variety of bodies, some of them local, some of them national in their activities, and most of them having special objects arising out of the peculiar needs of their particular industries.

But the latest and the most interesting trade association is to be found in connection with building. There has within the last few months been established a National Industrial Parliament for the building industry. This body is to have the support of most of the trade unions connected with building, as well as of the masters' associations. It is the most serious and the most promising effort that I have come across for the settlement of outstanding differences between capital and labour. It falls, however, far short of the ideal trade council as I conceive that body, in that it appears to have nothing to do with production, with science, with education, with the elimination of waste, or the control of competition.

What is Wanted.—It may be convenient at this stage to state exactly my conception of the National Trading Organisation which, in my judgment, the Government ought to bring into being without delay.

The basis upon which I build is the trade association and the trade union. I would have every manufacturer in a given trade a member of the trade association. I would require that every workman and workwoman in that trade become a member of the trade union. And from the two bodies I would construct a Trade Council to which the Government would give a status and responsibility, placing it in much the same position as a local governing body. Out of these numerous Trade Councils I would elect a National Trades Council, and, presiding over this, I would place a member of the Government specially responsible for the promotion of the trading interests of the country.

Having established Government control of associations, unions, and councils, it then becomes necessary to formulate a scheme of work for the development of each industry. The principal work which lies before these bodies divides itself naturally into six or seven heads:—

Industrial and scientific research; education; export; statistics and finance; wages and profits; exhibitions and advertising.

The Government Department charged with the control of these Trade Councils would divide itself into six sub-departments, dealing with these six subjects. It would then be necessary for each trade to set up committees and officers to handle each of these same subjects.

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I have been told that I am creating another army of officials. But there is just this difference between the officials which I would create and those armies of officials of which we hear so much in other quarters. My officials would be, every man of them, selected on account of their acquaintance with the trade.

The essential element in all these arrangements is the representative principle. The Trade Council or the Parliament would be a properly representative body, always under the necessity of keeping the confidence of the constituents. With the trade on the one hand and the Government on the other it ought to be able to combine the interests of the industry with the interests of the nation.

Some of the writers on this subject consider that the salvation of British trade will come from the amalgamation of businesses. They say that we are hampered by large numbers of £100,000 businesses which are powerless to compete with the £5,000,000 businesses of America and of Germany. They send us, in fact, straight along the road from amalgamation to combine, from combine to trust.

The advantage of the association method over the trust method is that it keeps the little man in being.

The little man in trade is a tremendous asset. He is essentially British. His only trouble is that he *will* devote his energies to fighting other little men instead of joining with them in an effort to fight the battles of the nation and to improve himself and his industry. If we can get the advantages of amalgamation or united action without destroying the little man I contend that we shall be all the better. If the little man is organised, if his work is arranged for him, if he is forced to specialise on some one little part of the trade in which he is engaged, we can, I think, secure the advantages of economical production, which is the main asset of the trust or combine.

As the price of recognition, and in return for the assistance which it is able to give to an industry, the Government will demand on the one hand the abandoning of the independent and irresponsible attitude of the trade union, and, on the other hand, the giving up of those elements in the masters' association which are contrary to the public interest.

Labour.—Any settlement of the trading problem is out of the question unless the co-operation of labour can be secured. Satisfactory working arrangements with labour can never be made until bodies representing capital and management of equal standing with the trade unions have been brought into existence. The establishment of thoroughly representative trade associations, together with the existing trade unions, would make possible the creation in each industry of governing or controlling bodies composed half of masters and half of men, who could be responsible to the Government for the welfare of each particular trade.

The demands of labour are generally erroneously expressed as demands for money—wages.

But the demand of labour is not really for money: it is for boots, beef, bicycles, omnibuses, or any other form of goods or services. These things all necessitate production.

I wish some means could be found of clearing this question of money right out of the way. It is a false issue. There is authority for regarding it as the root of all evil, and in this connection it certainly produces misunderstanding and helps to confuse the true situation.

The great brains that are directing the labour movement understand this point, and some interesting changes are noticeable. The claim of labour used to be for money. It then became a demand for a bigger share in the proceeds of industry; and latterly a more advanced plea is put forward for a share in the control of industry.

If we put the problems of production in their order they are, roughly, as follows:—

(1) Education; (2) the application of science to industry; (3) the elimination of waste; (4) the disposal of the product; (5) wages; (6) profits.

Now, the whole nation is interested in problems (1), (2), (3), and (4). Labour and capital are equally dependent upon their successful solution. Labour and capital are equally entitled to express an opinion with regard to them, and it is not until they are solved that any question of wages or profits can arise.

Output.—The foundation of industrial prosperity is production. We shall never reach the possible maximum in output until we have exhausted every device of organisation. This question of output is already an extremely urgent one, and in the future will assume far greater importance. Our position in relation to our competitors had become serious even before the war. A comparison of the census of production in this country and America gives some very startling and unpleasant facts. The American produces three times as much as the Englishman. The value produced in the United Kingdom by each worker in the boot and shoe industry per year was £171, in America £516. In cardboard boxes, £106 here and £275 in America. In cement, £192 in England and £472 in the States. In clothing the figures are £158 and £484.

These startling differences are not due to the fact that the American works any harder than the Englishman. They are the direct result of the better organisation of trade in the United States. Figures which should be studied by the side of them deal with horse-power and machinery.

This is not a matter of tariffs; it is not a matter of profits; it is solely and simply a question of organisation. But in securing maximum output it is not only necessary to employ the best machines and to see that the energies of every worker are utilised to the best advantage. It is also necessary to see that every factory in an industry is employed upon the particular class of work which it can best perform.

The managing director of one of the largest iron foundries in the country, discussing this subject with me recently, put the possibilities of output higher than I should have ventured to go. His company is engaged in the production of 1,000 different articles, a range of lines necessary to it to keep its place under our present system of competition. This expert assured me that if his foundry could be employed exclusively upon the production of rainwater pipes he had the facilities, the labour, and the room to turn out twice the present total production of the United Kingdom. If the matter could be carried one stage further and it could be arranged that this works were confined to the production of one size of one pattern of rainwater pipe I was assured that it could produce five times the total output of the country under the present system. Such a scheme as this would amount to the application of the munition method in every trade; the sub-division of goods and the sub-division of operations, the classifying of works and the allocation to each of that part of the product which it was best fitted to produce. The increase of our output would, of course, mean the capture of foreign markets, the reduction of price, and more commodities for everybody, more real wealth—which is exactly the same thing as an increase in wages or an increase in profits.

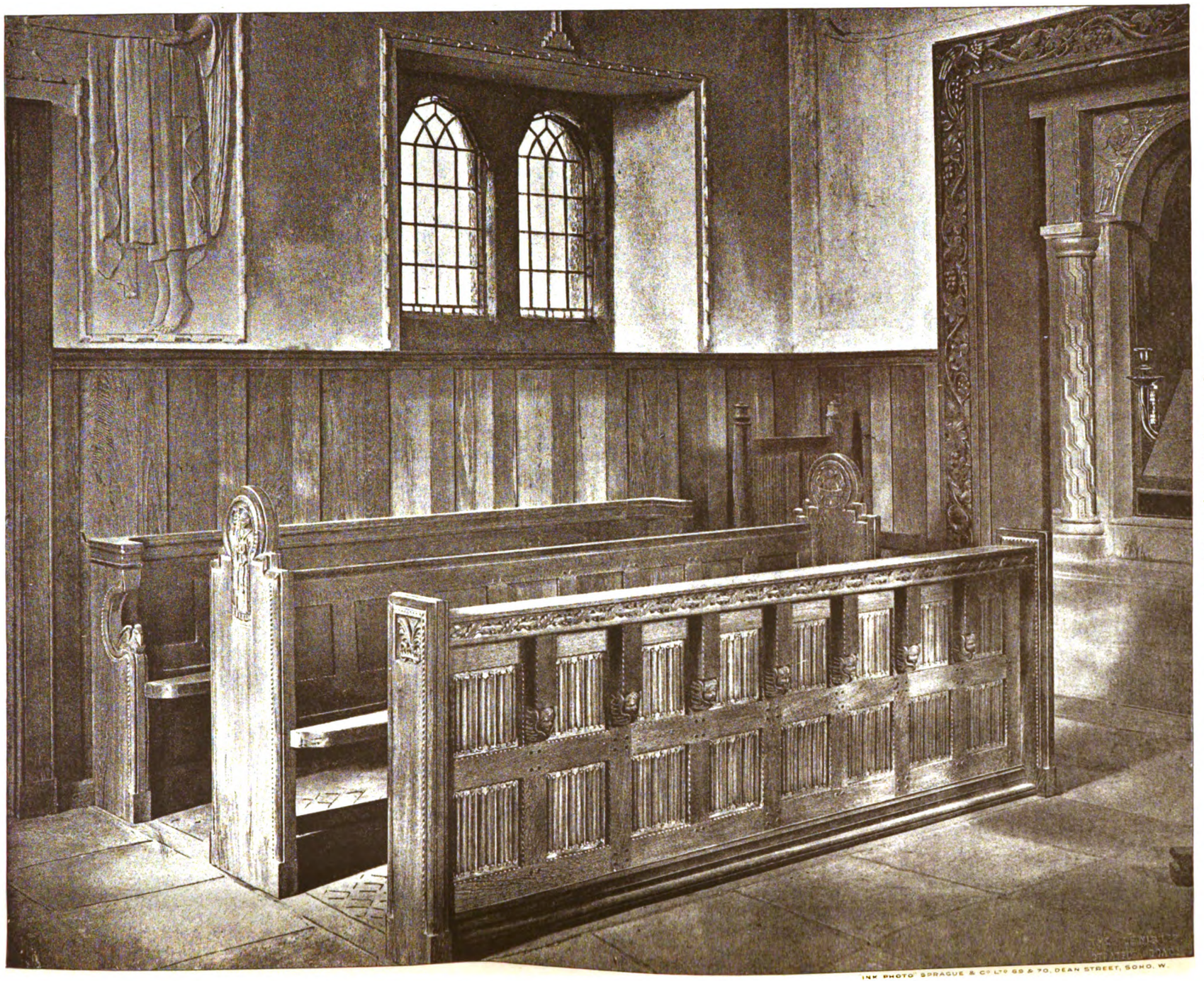
In the past, so far from studying the possibilities of increasing output, the tendency has been deliberately to restrict output. We have heard a great deal in the last few years about the limitation of output on the part of the trade unions. The iniquities of this system are, in my mind, no worse than the iniquities of the stupid competitive system which forces every manufacturer to attempt to cover the whole of his trade and thus waste half of his energies. This fetish of competition, erroneously considered to be in the interests of the consumer, has been carried to such lengths that it greatly increases the cost of most of the things that we require. It is a better understanding of these questions on the part of the Germans than ourselves which is far more responsible for the low-selling prices of German goods abroad than any tariff that was ever invented.

Export.—Coming to the question of export. Although

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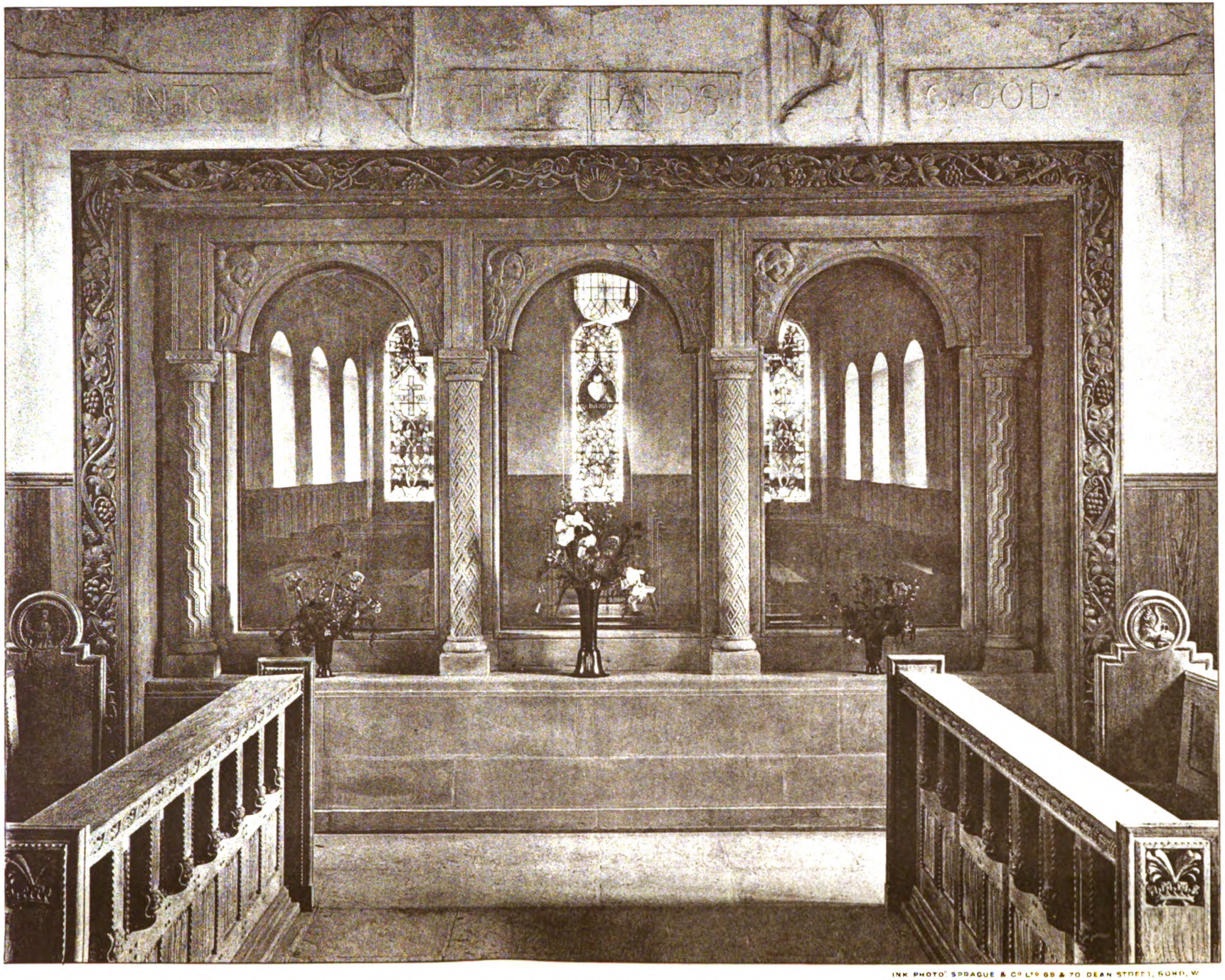
WHITLEY AND MONKSEATON U.D.C. CEMETERY BUILDINGS, CHAPEL: OAK SEATS AT EAST END.

The late Mr. EDWARD CRATNEY, F.R.I.B.A., Architect.

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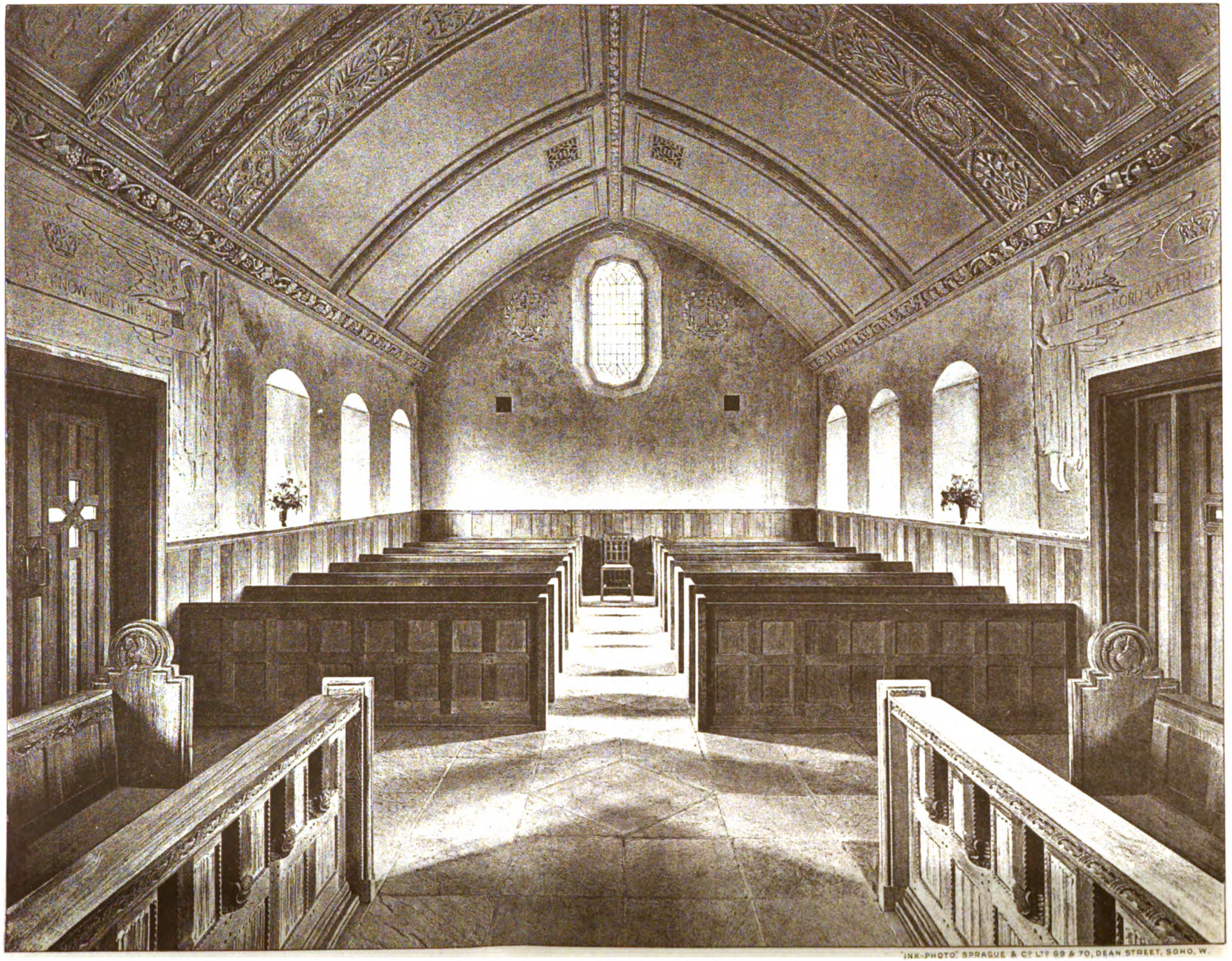
WHITLEY AND MONKSEATON U.D.C. CEMETERY BUILDINGS, STONE SCREEN BETWEEN CHAPEL AND MORTUARY.

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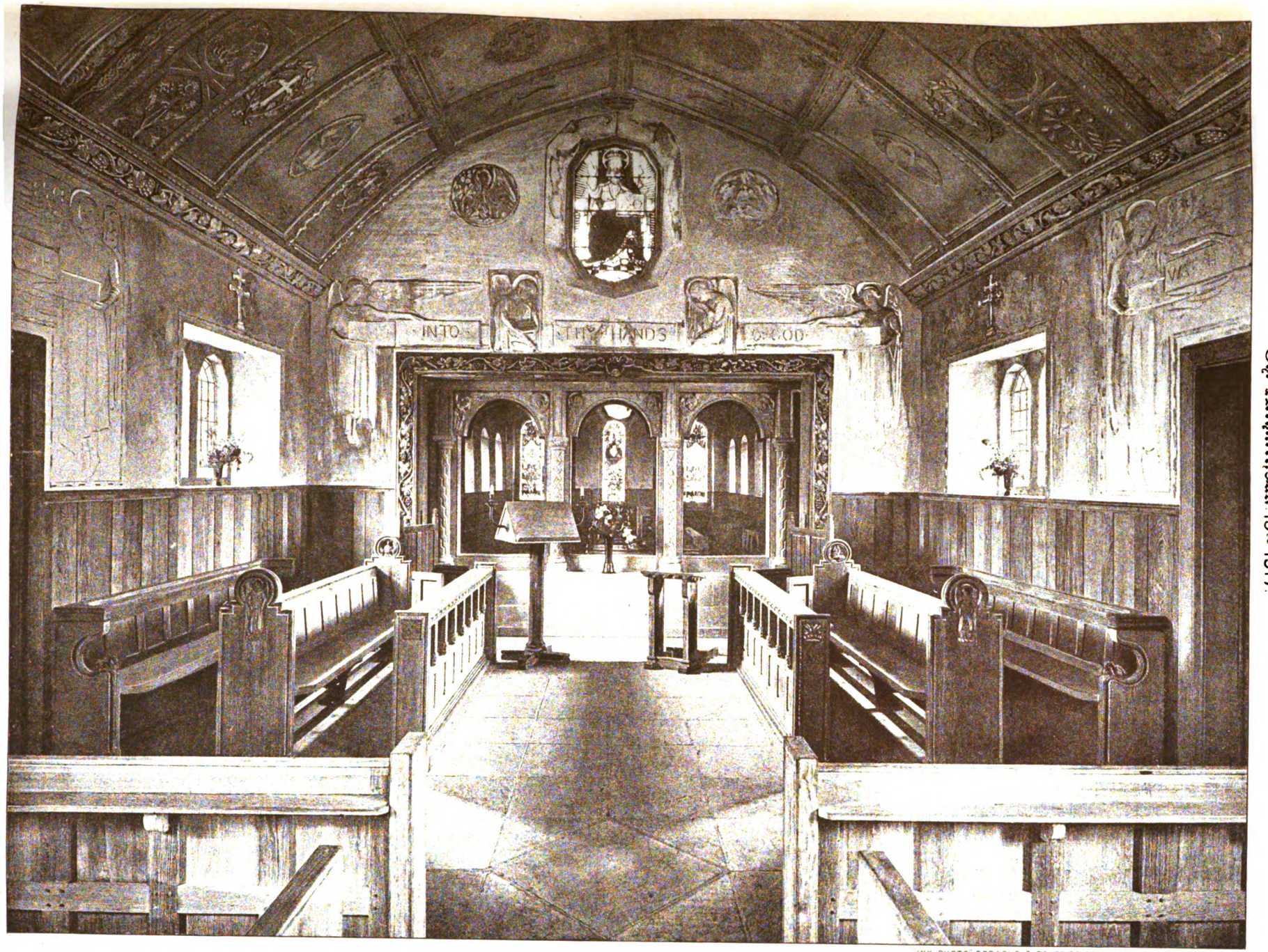


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WHITLEY AND MONKSEATON U.D.C. CEMETERY BUILDINGS, CHAPEL: INTERIOR VIEW FROM EAST END.

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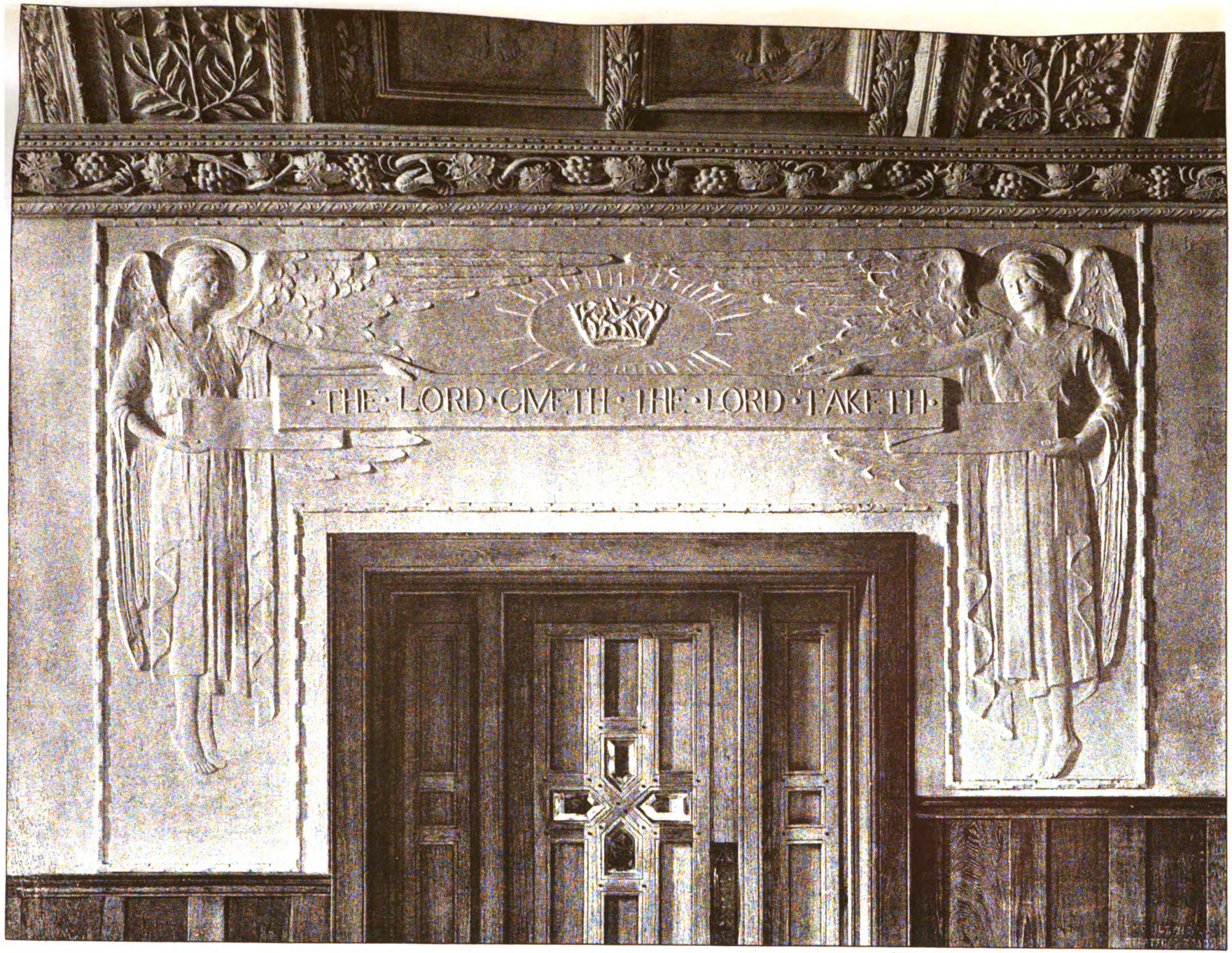
WHITLEY AND MONKSEATON U.D.C. CEMETERY BUILDINGS, CHAPEL: INTERIOR FROM WEST END SHOWING MORTUARY SCREEN,

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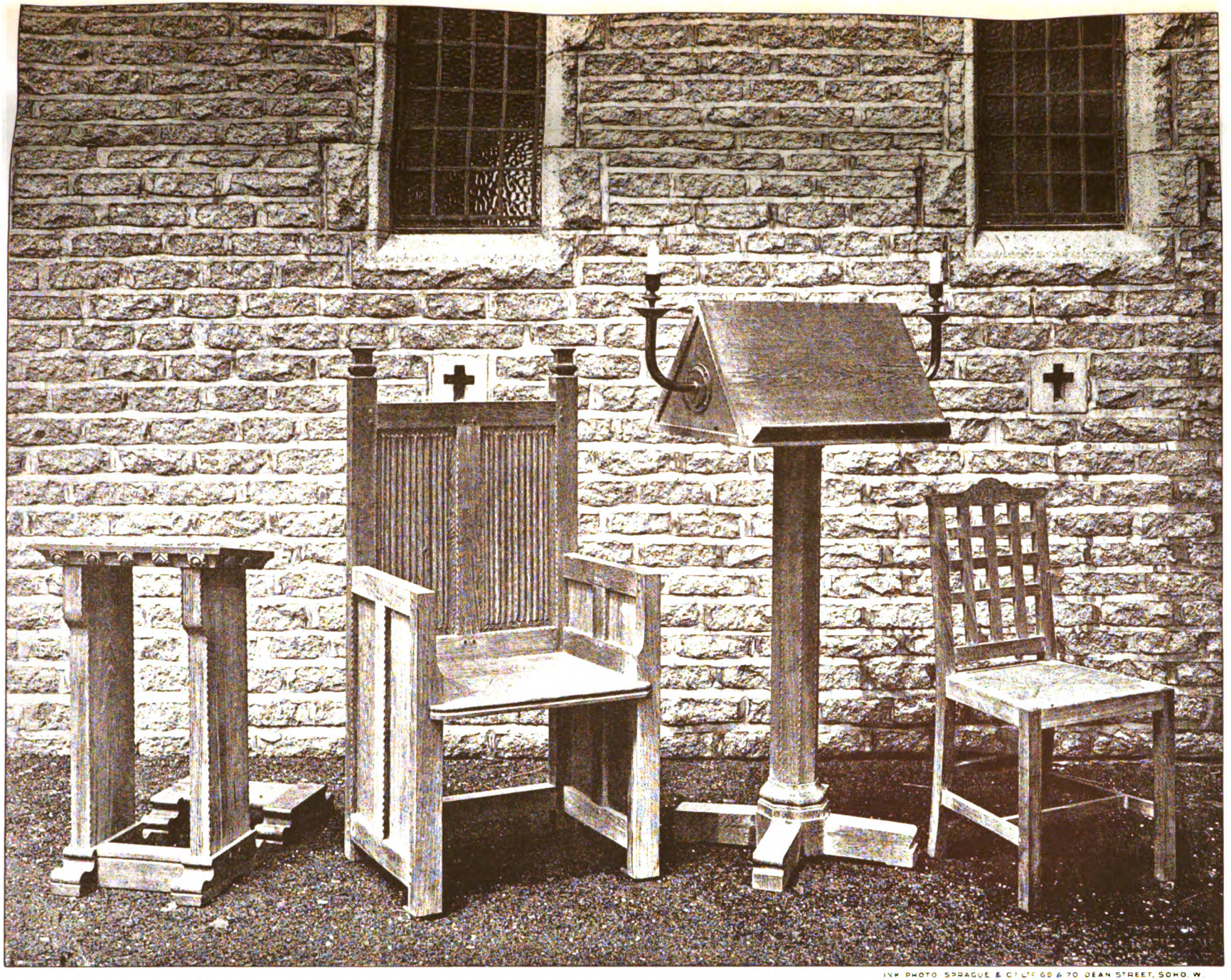
WHITLEY AND MONKSEATON U.D.C. CEMETERY BUILDINGS, CHAPEL. PLASTER DECORATION OVER VESTRY DOORS.

The late Mr. EDWARD CRATNEY, F.R.I.B.A., Architect

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WHITLEY AND MONKSEATON U.D.C. CEMETERY BUILDINGS. OAK FURNITURE TO CHAPEL.

The late Mr. EDWARD CRATNEY, F.R.I.B.A., Architect

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we have, per head (I am speaking now of pre-war times). the largest export business in the world, the full possibilties of exportation have not yet been realised. It is the greatest folly to rest content with the fact that we happen to be doing more business in this way than others. We have been at it for centuries: others have only just begun; and it would indeed be a marvel if, after a mere thirty or forty years, either Germany or America were able to show an export position which would compare with ours.

But it is necessary to realise that we are in danger of losing our lead in export matters unless we improve our methods.

The position in regard to any particular industry in a particular foreign market is, roughly, this: The German trade, through its cartel, has a perfect system of representation in that market. There is no competition as between Germans. America is in almost the same position, where, through one of their export associations or through one of their trusts, they have that market properly organised, and its requirements looked after by an expert staff. But Great Britain, which for centuries has been in the habit of supplying this market, has nothing but a personal connection between a number of individual manufacturers and a number of individual buyers. Those individual manufacturers are, in most cases, in direct competition with each other.

My contention is that every trade must present a united front to foreign competition. The struggle of the future in the foreign market will be between German goods, American goods, Japanese goods, and English goods, and that competition will be sufficiently severe without further competition between individual English manufacturers.

We are constantly told of the ability of the German to adapt himself to the requirements of the buyer. Our Consuls have written reams to show how German goods are so made as to meet local peculiarities. The reason for this is, in my judgment, the fact that the intermediary between the German and the buyer is, as a rule, a technical expert in the goods which he is called upon to sell. These trifling alterations, which, however, make for success or failure, are matters which demand the attention of the expert.

To sum up this question of export, the position is that American trusts have done extremely well, that German cartels have done better, and that British co-operation, if it can be brought about, will do best.

Scientific Research.—I have left until the last the greatest question of all—scientific research. The most important work that will fall to the lot of these trade councils will be in connection with the application of science to trade. The arrangements which the Advisory Council have recently made are an exact model of the arrangements which I hope may be made in other departments.

The announcement conveyed to a deputation which waited upon Lord Crewe on December 1 is of historic importance. The State has now accepted definite responsibility for this vital question of scientific research, and—what I regard as an even more encouraging development—it has for the very first time established regular connections with trade associations.

Lord Crewe announced that labour is to be represented on these associations, but he did not go into details. I hope it is not too late to do something to make these bodies truly representative, so that the State expenditure on scientific research may be entirely free from any taint of connection with cliques, and above the abuses of nomination, influence, or snobbery.

Conclusion.—There are many other matters that ought to be mentioned, but time forbids.

For instance, it is suggested that we should develop closer relations with our Colonies. Some sort of fiscal arrangements with Allies are advocated. Various schemes are propounded for dealing with the trade of the enemy after the war. All I want to say is that we cannot secure the maximum benefit from any arrangements such as these unless we organise ourselves.

In conclusion, I therefore ask:—

(1) That the State shall recognise its duty in connection with the promotion of trade.

(2) That duly elected public bodies shall be created, charged with the responsibility of caring for each trade.

(3) That both employers and employed shall be represented on those bodies.

Only by some such means as this can the gigantic problem of our trade, with all its details, all its complications, and all the vast national and international interests involved, find a satisfactory and a lasting solution.

ART IN LONDON.

LOUIS RAEMAEKERS' CARTOONS.

IT should not be necessary to emphasise the value of an artist's work being strongly psychological in its nature. But seeing how many of the confraternity there are whose productions give no evidence of this bent, the remark is perhaps to the point. Undoubtedly Mr. Raemaekers is an exponent of psychological art; and it is this quality which renders his cartoons so particularly attractive. They are the more attractive in that there is no sign of exaggeration or insincerity throughout the collection. "The Shields of Empire" (No. 1) has great decorative value for the frontispiece of the forthcoming volume, "The Great War in 1916." But we have no intention of cataloguing, and very little intention of selecting, for all the work is on such a high plane; we must, however, draw special attention to No. 54A ("The Old Serb"), which is one of the very best and is truly pictorial. The finely conceived satire, the sharp-pointed criticisms, the pathos, the horror of the war, the deathblow given by these drawings to the old idea of the romance of war—all this is more prominent in the Dutch cartoonist's art than in the work of any other cartoonist known to us, fine as is much of the production resulting from the current tragedy.

THE NATIONAL GALLERY BILL.

THE Museums Association has addressed the following comment on the new bill:—To the Trustees and Director of the National Gallery, London:

Sirs,—On behalf of the Council of the Museums Association, a body representing the leading museums and art galleries in the empire, we desire to record our appreciation of that part of the National Gallery Bill, 1916, which proposes to allow loans to colonial galleries and some extension of the facilities for the loan of pictures and other works of art to provincial galleries. It is our earnest hope that this portion may in due course become law.

With regard to that portion of the bill providing for the sale of works of art in the possession of the National Gallery Trustees, or which may be acquired by them in the future, we would ask that, in the event of the bill becoming law, the most intimate and sympathetic consideration be given to the needs of the aforesaid provincial and colonial galleries before any work be sold; seeing that the deficiencies of our provincial collections, in the matter of pictures by deceased masters, are so many that all the National Gallery duplicates of any importance could be absorbed by them with great advantage to the diffusion of art knowledge in our own country.

We further beg respectfully to submit that it would tend to inspire confidence, and be a desirable safeguard, to have an expert independent advisory tribunal to examine and confer with the trustees and director from time to time in regard to works to be sold or exchanged. This might tend to prevent the loss to this country of national possessions, which, even if considered superfluous as regards the National Gallery Collection, might be of value to other public galleries in the British Islands, or in our Overseas Dominions.

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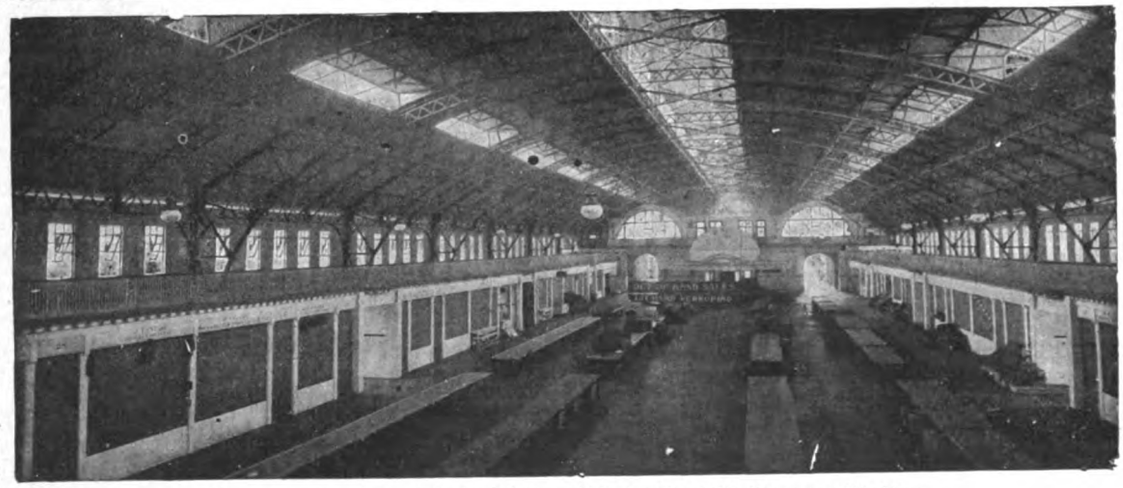
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We are also of opinion that any legislation designed to restrict the exportation of certain classes of paintings, &c., should apply to all works falling to those classes, and not be restricted to those specified on a list which has been prepared by or for the trustees of the National Gallery.—Yours faithfully,

E. RIMBAULT DIBDIN, President.
E. E. LOWE, Hon. Secretary.

Correspondence

[The Editor will not be responsible for the opinions expressed by Correspondents.]

Cremation as a Preventive of Premature Burial.

SIR,—"The Society for the Prevention of Premature Burial" has been making propaganda for many years on the subject of premature burial in order to obtain legislation for the reform of the Burial Law, but with no result. A Bill was introduced into the House of Commons and read, but nothing further was done.

But now the shortage of labour for grave-digging and coffin-making seems likely to settle the question in more ways than one by resorting to cremation.

The following, quoted from "Premature Burial," is relevant to the subject. It is entitled "Cremation as a Preventive: Sir Henry Thompson's Opinion":—

"Amongst the numerous suggestions made by correspondents in the Press with a view of preventing live sepulture none has been more frequently put forward than that of cremation. Sir Henry Thompson, the president of the Cremation Society of England, in the second edition of his admirable volume, 'Modern Cremation: Its History and Practice,' p. 41, observes: 'There is a source of very painful dread—as I have reason to know—little talked of, it is true, but keenly felt by many persons at some time or another, the horror of which to some is inexpressible. It is the dread of a premature burial—the fear lest some deep trance should be mistaken for death, and that the awakening should take place too late. Happily such occurrences must be exceedingly rare, especially in this country, where the interval between death and burial is considerable, and the fear is almost a groundless one. Still, the conviction that such a fate is possible—which cannot be altogether denied—will always be a source of severe trial to some. With cremation no such catastrophe could ever occur; and the completeness of a properly conducted process would render death instantaneous and painless, if by any unhappy chance an individual so circumstanced were submitted to it. But the guarantee against this danger would be doubled, since inspection of the entire body must of necessity immediately precede the act of cremation, no such inspection being possible under the present system.'

"The optimistic views of Sir H. Thompson as to the rarity of people being buried alive are not shared by those doctors who have made a study of the subject.

"The result of searching and independent inquiries and study in various countries by each of the authors of this treatise all point the other way."—Yours, &c.,

E. L.

The Architectural Association Bureau.

SIR,—Your readers are no doubt already familiar with the work which the A.A. War Service Bureau has carried on since the outbreak of war in connection with recruiting, and by assisting members of the architectural profession in army matters, and they will therefore perhaps be interested to know that the Association has now turned its attention to the needs of members of the profession returning from the army to civil life, and has prepared various schemes for meeting such needs.

Brief details of the Association's proposals were published in the "A.A. Journal,"* but we are particularly anxious to call attention to the fact that the assistance of the War Service Bureau is placed unreservedly at the disposal of any member of the profession discharged from the army.

Enquiries in connection with convalescence, employment, re-training, emigration, or indeed any matter connected with the return to civil life will be welcomed, and every assistance given.—Yours, &c.,

G. R. YERBURY,
Secretary, Architectural Association.
37 Great Smith Street, Westminster:
January 16, 1917.

* See page 33 of this issue.

BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

ENGLAND.

ESSEX.

Leytonstone.—The "Green Man" public-house, High Road: additions and alterations. Mr. R. Banks-Martin, architect, 121 Plashet Grove, East Ham.

Southend-on-Sea.—Congregational Church, Westcliff-on-Sea, for Crowstone Church Trustees.

Walthamstow.—"Higham Lodge," Blackhorse Lane: additions and alterations. Mr. C. Burton, A.R.I.B.A., architect, 1 and 2 Gray's Inn Place, London.

No. 89 Shernhall Street: offices, &c., for the British Woodworkers, Ltd.

KENT.

Margate.—"Queen's Hotel," Highcliffe: alterations for Mr. A. L. Adutt.

LANCASHIRE.

Bolton.—Premises, Blackhorse Street: extensions for Messrs. H. Bessemer & Co., Ltd.

Premises, Foundry Street: extensions for Chatwood Safe Co.

Premises, Rothwell Street: extensions for Messrs. Johnson, Hodgkinson & Pearson.

"Sunnyside" Mills, Daubhill: additions for Messrs. Tootall, Broadhurst, Lee & Co., Ltd.

Workshop, Angelo Street, for Mr. R. Wood.

Halsall.—"Mill House" Farm: addition for Mr. J. Harrison.

Nelson.—House, Rakes House Road: alterations for Messrs. T. & J. Morr.

Rochdale.—Premises, Oldham Road: additions for Tomlinsons (Rochdale), Ltd.

Works, Howard Street: additions for T. Holt, Ltd.

MIDDLESEX.

Twickenham.—House, Heath Road. Mr. Slark, builder.

No. 10 Queen's Road: motor garage. Messrs. Brewer, Smith & Brewer, architects, 6 Montpelier Road.

Pelabon Works, Cambridge Road: alterations for Mr. Pelabon.

NOTTINGHAMSHIRE.

Mansfield Woodhouse.—Thirteen houses, near Old Mill Lane, for Mr. Stainforth.

SURREY.

Barnes.—Six houses, Westwood Road, Mr. E. Bates, A.R.I.B.A., architect, 27 Queen Victoria Street, London.

YORKSHIRE.

Bridlington.—"Alexandra" Hotel: additions and alterations. Mr. J. R. Earnshaw, architect, Carlton House, Wellington Road.

"Crown" Hotel, Quay Street: additions and alterations. Mr. F. A. Tugwell, A.R.I.B.A., architect, 102 Westborough, Scarborough.

House, Carr Lane. Mr. M. B. Parkin, architect, Belvedere Parade.

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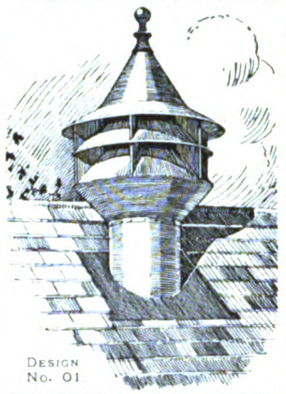
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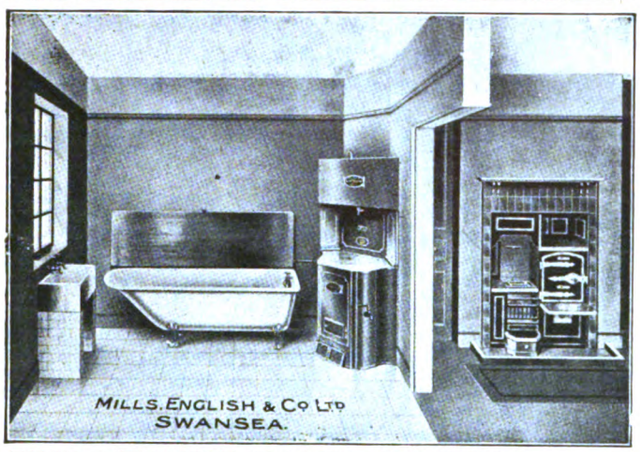
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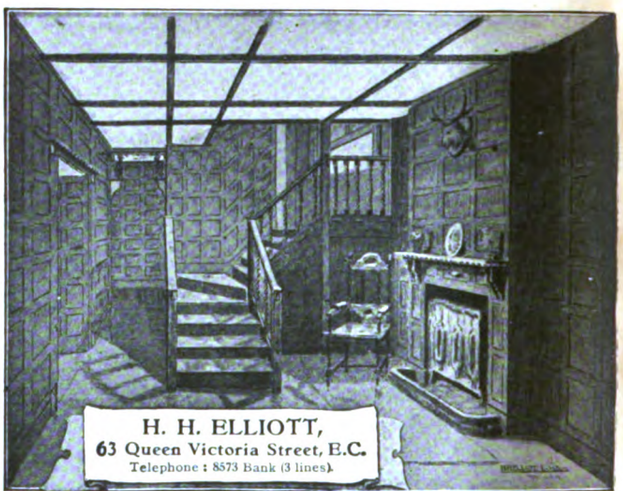
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FORTHCOMING EVENTS.

Friday, January 26.

London Society : Paper entitled "Queen Square, Bloomsbury, and its Neighbourhood," by Mr. Philip Norman, LL.D., F.S.A., in the Hall of the Royal Society of Arts, at 5 P.M.

Saturday, January 27.

St. Paul's Ecclesiological Society : Thirty-eighth annual meeting, at the Chapter House, St. Paul's, E.C., at 2.30 P.M.

Monday, January 29.

Royal Society of Arts : Cantor Lecture I. on "Town Planning and Civic Architecture," by Professor A. Beresford Pite, F.R.I.B.A., at 4.30 P.M.

Wednesday, January 31.

Carpenters' Hall : Lecture entitled "What I have learnt from the Care of Ancient Buildings," by Mr. Thackeray Turner, F.S.A., F.R.I.B.A., at 7.15 P.M.

THE STATE AND HOUSING.—II.

It must be remembered that the problem of providing housing accommodation for the working classes or weekly-wage earners has to deal with three distinct classes of dwellers—urban, sub-urban, and rural—and the considerations to be met vary considerably in respect of these different classes. Our garden-city enthusiasts are all in favour of single family cottages, ten or twelve to the acre, so as to allow each cottage a fair share of garden land. Even if we grant that such conditions of living make for health, and that even for many town-workers such advantages may be obtained by the provision of cheap and quick transit facilities, there will still remain a no small number the conditions of whose occupation imperatively demand residence close to, that is, within a short walking distance of their daily or nightly labour.

For these urban dwellers the cottage type of dwelling is unquestionably unsuitable and leads to the development of the slum. For them therefore the tenement affords a far better opportunity of satisfactory housing. But to avoid the undoubted disadvantages that the majority of prevalent tenement housing schemes present and of which, in argument, the garden-city advocates make the most, the State, in giving its support to such schemes, should insist on a fuller provision of amenities that may make the life of the urban-dweller worth living. Particularly tenements should be schemed as homes, not as barracks. Provision should be made for communal domestic operations, as washing and laundry work, for recreation and social intercourse. Such provision would not need to be as extensive as in a self-contained colony like Port Sunlight, for the town has its advantages in this direction, but a tenement community should not, as is now too often the case, be entirely dependent upon outside sources.

Sub-urban dwellers should be provided, under State auspices, and under as near an approximation as circumstances may permit, with such conditions of healthy and happy existence as fall to the lot of the dwellers in Port Sunlight, which, in our previous article, we have characterised as "the foremost English example of idealistic town planning." The garden-city and garden-suburb enthusiasts have very well formulated the principles on which homes for sub-urban dwellers should be provided.

The housing of rural dwellers is complicated by the fact that in the past cottages have been mainly provided by the owners of the estates upon which their occupiers have been employed. They have been let at rents which in no sense represented in themselves an adequate return upon the capital invested. A farm labourer's cottage may indeed be regarded as part of the wage which he receives for his work.

The Special Unemployment Committee of the Surveyors' Institution have very well dealt in Part II. of their report, concerning rural employment, with the conditions of rural housing, and we are are in complete accord with the recommendations they make on the subject. Briefly summarised, they are, that the wages of agricultural labourers should be raised to a figure which will enable the payment of economic rents; that where landowners do not desire to build, the Board of Agriculture should provide for the erection of cottages; that where the owners or a group of owners, formed into an authorised society, decide to build they shall be financed by the State on the lines of the Treasury proposals for advances to local authorities or public utility societies under the Housing (No. 2) Act, 1914; that the Board of Agriculture should be empowered to modify or amend building by-laws which, in their opinion, would unnecessarily add to the cost of building.

We now come to a consideration of the relative positions that should be occupied by the State, by local authorities, and by private enterprise in the State-aided provision of housing for the people.

First, there is the question whether the Government or a local authority should undertake the actual building of houses. Interesting light is thrown on this question by the figures given in the report of the Comptroller and Auditor-General on the Account prepared under the provisions of the Housing Act, 1914, for the period ended March 31, 1916. From this report we learn that the cost of the Woolwich or Well Hall Housing scheme carried out by H.M. Commissioners of Works averaged per residence about £620, of which £540 was expended on the erection of buildings. There can be no doubt that private enterprise would have built correspondingly well at a far lower figure, even allowing for war-time prices.

The official in his building operations is spending other people's money, the private speculator is spending his own, for even if a considerable proportion is borrowed, his remuneration depends upon the strict elimination of all wastage. The official is practically sure to waste. If he is not capable, he wastes for want of knowledge and ability. If he is capable, he still wastes in his enthusiasm and over-zeal for a good job. Experience has shown, time after time, that a municipality or Government department cannot build houses as cheaply as the speculative builder. Hence we arrive at the conclusion that it is not advisable for the State to build itself, either through a Government department or a local authority.

In the part of their report dealing with urban conditions the Special Unemployment Committee of the Surveyors' Institution take for granted the practical impossibility in existing circumstances of attracting private capital to investment in housing for the working classes,

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and do not attempt to deal with the feasibility of modifying the existing circumstances.

They, however, propose that local authorities should be financed by the Government on terms not less favourable than those on which the Treasury were prepared to advance money under the Housing (No. 2) Act, 1914, the period of the advance to be not less than sixty years, *i.e.* 10 per cent. of the approved capital cost by way of free grant; the remaining 90 per cent. by way of loan with interest at 4¼ per annum.

We feel confident that if private enterprise were financed upon similar terms, even without the free grant, but coincident with a repeal of the deterrent clauses of the Finance Act, 1909-10, there would be no lack of responsible individuals willing to carry out the building of all the housing accommodation required, whether for the so-called working classes or for those of a higher social position.

The part therefore that we consider that the State should take in the solution of the housing problem is the financing of approved schemes, whether these be undertaken by private individuals or by authorised societies.

To the local authorities we would depute the proposal of schemes, the acquisition of land, and the supervision of the carrying out of the schemes by approved private enterprise, whether by individuals or by authorised societies. In this supervision we would include the approval of plans and the character of accommodation, the fixing of rents, the quality of construction. We think it would not be necessary or even desirable for the minimum period of loans to builders to be as much as sixty years.

The local authority is usually in a position, or could be invested with statutory powers to be in the position, to acquire land on the most favourable terms, and in leasing the land could arrange such terms, even to the extent of granting free land, as advocated by Sir William Lever, as would, in certain circumstances, enable them to make such conditions for the tenants as might be incompatible with economic rents.

One more point remains. Speculative builders, in modern times, are wont to build with the view of selling rather than letting, and many tenants rent, with the assistance of building societies, with the view of ultimately becoming owners. It would be in the interest of the State to encourage the custom of occupant-ownership, particularly with the view of developing national thrift, and in State-aided schemes of housing provision should be made for tenant-right of purchase.

NOTES AND COMMENTS.

IN a descriptive article on the Gladstone Memorial at Edinburgh, the "Glasgow Herald" alludes to the popular modern demand that the chief feature of a sculptured memorial should be a portrait, and contrasts this demand with the freedom allowed to, or at any rate attained by, the great masters of sculpture in Egypt, Greece and Italy, who were able to ignore strict portraiture and devote their art to expression of the character, the attributes, the fame or the personality of their subjects. Undoubtedly it is somewhat of a handicap that a literal portrait of the individual commemorated should be required of our modern artists, but it is the scratch man and not the back-marker who is the best athlete and the best artist is he who, whilst satisfying the public's desire for a portrait, yet contrives to express to the fullest extent the personality of the individual.

The necessity for "amenities" in working-class housing is well illustrated by what is happening at Rosyth. Houses are dumped down near the docks and workers are expected to live in them. But the workers want homes, not merely houses, and pour into Dunfermline, Inverkeithing, Kirkcaldy and Edinburgh so that their families may have the advantages of parks, baths, libraries, theatres, picture palaces and other normal accessories of social existence.

It appears that civic improvement in Dublin is hopeless. The national instinct of opposition may always be trusted to stand by the side of vested interest. The Lord Mayor and other members of the Corporation's Special Committee secured the passing of the Reconstruction Act. In the exercise of the powers thus obtained it was proposed to widen Earl Street, an improvement obviously desirable in the public interest. But at a special meeting of the Dublin Municipal Council an amendment to the Committee's report was passed limiting the widening to three feet, which is clearly farcical.

We have already referred in these columns to the objectionable proposal to instal overhead cables for the extension of Edinburgh's tramway system and to the well founded opposition thereto. On the side of the objectors the Council of the Cockburn Association, in their annual report, now range themselves, and the influence of the Association, though not a very numerous body, is now enlisted against the threatened mutilation of some of Edinburgh's most charming street prospects.

ILLUSTRATIONS.

"GREY WALLS," WEYBRIDGE.

THIS house was started to be erected when the war broke out, but has to be held in abeyance as a result of the same. The walls are composed of stonework of a mixed nature in random squared masonry, and the roofs covered with grey tiles and stone slates. Flint work will be introduced to the masonry faces, and in the entrance front brickwork will be freely mixed with the stone. The windows are in leaded squares with metal casements of special section, designed by the architects, Messrs. Castle & Warren, set in deep mullions with wide window boards. The gardens and grounds will be laid out by the architects, and a special feature is to be made of the stone sunk garden on the south side of the house, which overlooks a magnificent view of Surrey. The interiors will be treated in character, and designed to receive old furniture. The hall and dining-room will be oak panelled, and the ceilings beamed out. The other rooms will be all treated in character, but in a lighter manner with decorative plaster ceilings on old lines. The builder is Mr. W. G. Tarrant, of Byfleet.

SOANE MEDALLION DESIGN.

THIS drawing by Mr. Cyril A. Farey was exhibited at the Royal Academy Exhibition 1915.

34, 35, AND 36 GOLDEN SQUARE, LONDON, W.

WE have much pleasure in illustrating one of Mr. Leonard Stokes' characteristic and able treatments of utilitarian or business premises which form welcome additions to the street architecture of London.

MR. EDWARD ROBERT ROBSON, F.S.A., F.R.I.B.A., died this week, after a short illness, at Blackhead, at the age of eighty-one. He commenced his student days by spending three years in shops for practical building construction. He was the pupil first of John Dobson (Newcastle-on-Tyne), and later of G. Gilbert Scott, R.A. Amongst his works are the New Gallery in Regent Street, W., the People's Palace, with its library and Queen's Hall, several hundred schools in London, also churches and mansions. For six years he was architect in charge of Durham Cathedral; for seven years he acted as surveyor to the Liverpool Corporation, then he was the first architect to the School Board for London, and so continued until offered posts under the Government. Finally he set up a private practice in Westminster. He became an Associate of the R.I.B.A. in 1860 and a Fellow in 1864.

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THE NOCTURNALS OF THE RENAISSANCE AND THEIR DECORATIONS.

By the Late J. TAVENOR PERRY.

MODERN mathematical and scientific instruments do not lend themselves to embellishment by relief or engraving, their makers rightly regarding any ornamentation as likely to interfere with the distinctness of the various lines or scales marked upon them, and thus mar their utility as implements of precision. But such decoration on clock faces and that of the inner cases of watches survived nearly to our time, though the "engine turned" watch backs seem to be the highest artistic effort of present-day horologists; but the chief reason for its disappearance is the fact that the instruments which are the most suitable for any adornment, the sun and moon dials, the perpetual calendars on metal, and the nocturnals, have themselves fallen into desuetude, and now, so far as mathematical instruments are concerned, Art and Science are as much divorced as are the two South Kensington establishments which once dwelt together in harmony within the "Brompton Boilers."

A description of the character and use of the instruments is necessary as an introduction to any account of their decoration, and an examination of the very simple nocturnal made at the end of the sixteenth century by Humfrey Cole, and now in the British Museum, of which we give a drawing (fig. 1), will best serve our purpose; and to this we will add a guide to its use published at the same date in Thomas Fale's "Horologiographia." Cole's nocturnal consists of a circular disk of brass $3\frac{3}{4}$ inches in diameter, having attached to it on each face other and smaller disks revolving on a pivot, which is pierced through in the centre sufficiently wide to permit of the observation of a star. The greater disk has the edge of the face divided into the months and days of the year, while the superimposed one is divided at the rim into the twenty-four hours of the day and night, and has the edge notched like a saw with teeth, two to each hour, the intermediate one for the half-hour having the less projection, so that it was distinguishable by the finger at night. This second disk is moved by a projecting handle, issuing at the point of midday, and with a sun-face engraved upon it; while the field of this disk, within the margin, contains the

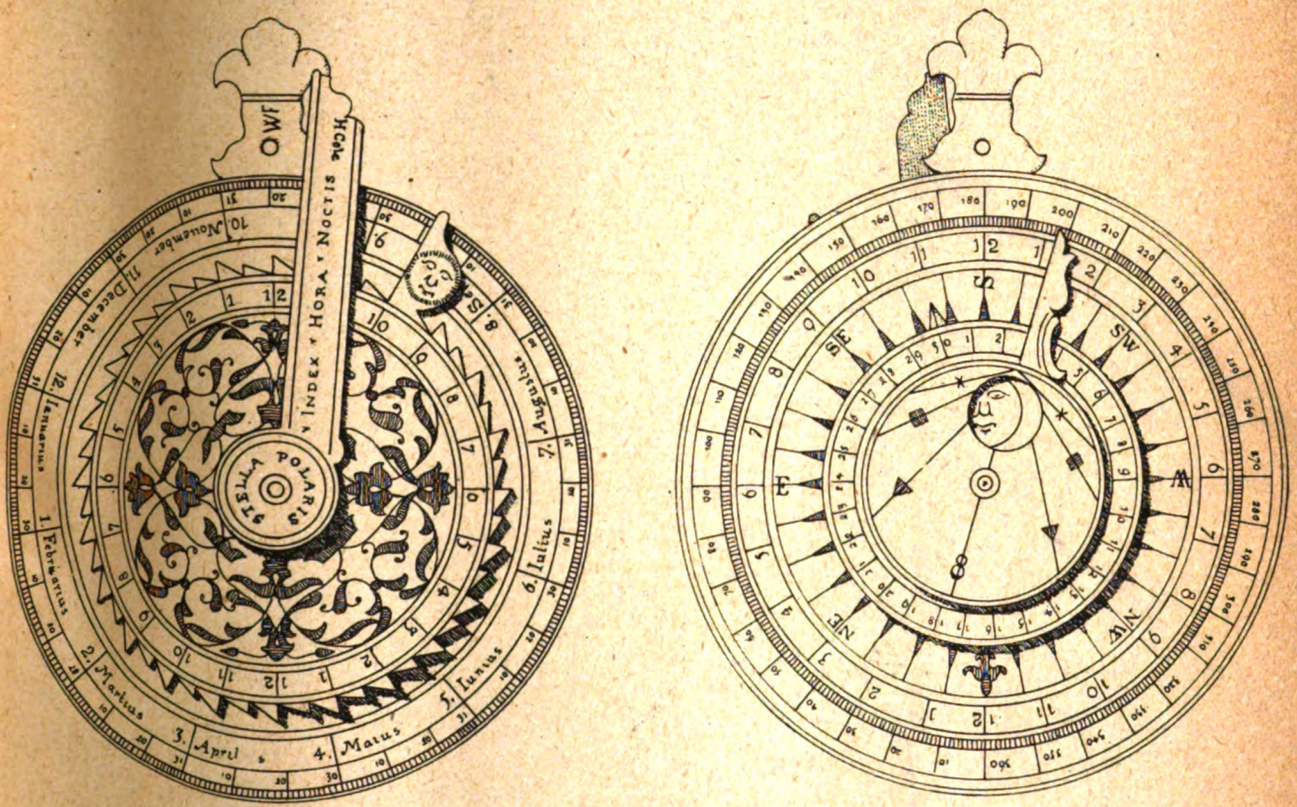


FIG. 1.

The class of instruments to which we have referred as presenting surfaces free for ornamentation were usually constructed of thin plates of metal, sometimes rectangular, but more generally in the form of disks, and these disks were often, according to the nature and the particular apparatus, grouped in layers of two or more revolving on a common centre, and being placed close together, the upper one passing over the face of the lower one, the decoration was limited to engraved lines or relief ornaments sunk back from the face of the disk, the reliefs being generally confined to the signs of the Zodiac placed in medallions hollowed out to receive them. But there were a number of attachments to these disks by which they were moved round, as well as index arms, and the handles by which the whole instrument was held when in use; and it was upon these, not subject to the same limitations in the matter of projection, that so large an amount of ornament was frequently lavished as to make them worthy of consideration for their artistic beauty rather than for their scientific utility.

only decoration on the piece. Over all is a third disk to which is attached a long arm moving freely, one straight side of which coincides exactly with the diameter of the circle.

The reverse of the great disk is divided on the outer margin into the 360 degrees, next into the twenty-four hours, and within these are shown the points of the compass. A second disk over this is divided into thirty for the days of the lunar month, and is moved by a small point radiating from the thirty; and a third disk, moved by another projection, is pierced with a circle placed between the centre and the circumference, which discloses the face of the sun, of the same diameter, in its revolution, and is intended to mark the phases of the moon. This disk is also scored by lines radiating from a point on the circumference above the piercing which are marked by the triangle, the square, and the six-rayed star, to indicate the trine, quartile, and sextile of astrological import. These marks for the use of astrologists are often found on lunar dials, and appear on that made for the Earl of Essex in 1593 by James Kynuyn,

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"of London, neere Paules," and they show on the disused lunar dial fixed outside of the south-west tower of St. Margaret's, King's Lynn, set up as late as 1687. The handle for holding the nocturnal, marked with a "W.F.," presumably the name of its owner, is fixed to the great disk at the south point of the compass, so that when it is taken in the hand for use its position is the reverse of that shown on our drawing.

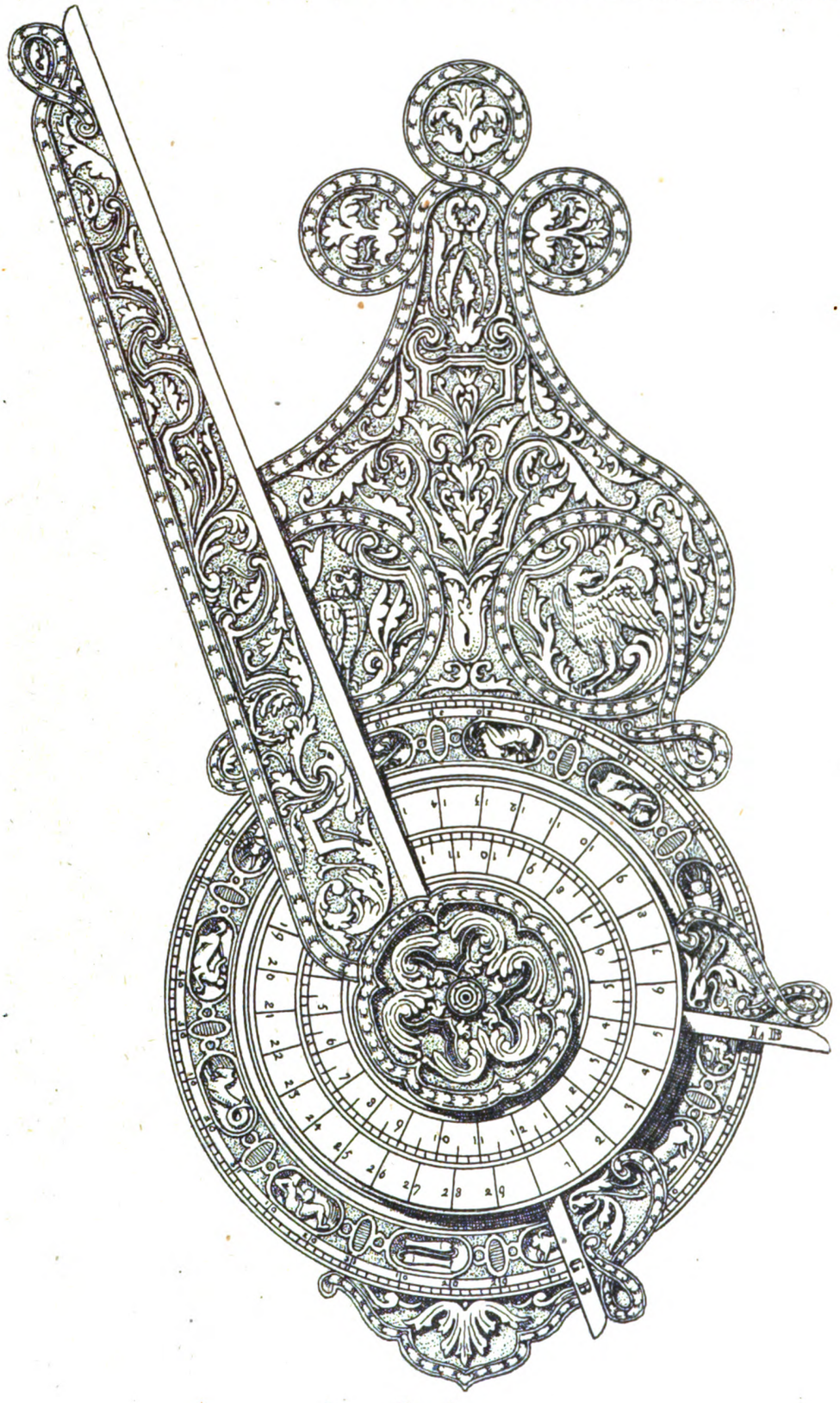


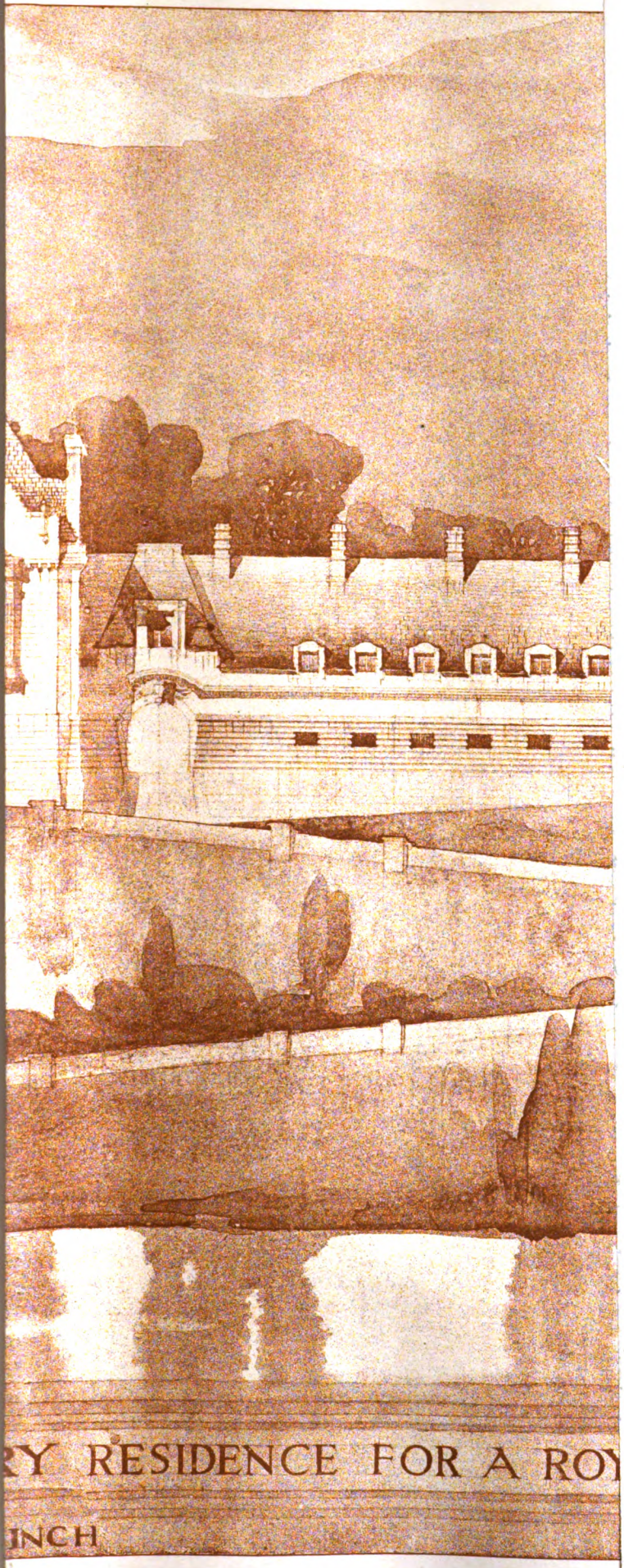
FIG. 2.

The manner of using the nocturnal is set forth in the "Horologiographia"[1] of Thomas Fale, a physician and mathematician, whose work passed through several editions, and we will quote his exact words and phraseology:—

When you would know the houre of the night by this instrument, doe thus: Place the right line of the long tooth of the 12 houre directly over the day of the moneth, and turne the handle on the back side to the hole of the greater beare, and your instrument shall be prepared. Then lift your instrument perpendicularly, so that it declineth on neither side: and beholding the Polare Starre thorow the hole in the centre, moue the ruler aboue, untill the right line thereof be directly against, or seemeth to touch the two

[1] Thomas Fale, "Horologiographia, the Art of Dialling," 1597 (in black letter).

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Starres of the greater beare, and under the line you shall have the just houre of the night: which you may find out by the number of the teeth with your finger in the night. But if you cannot see the two Starres of the greater beare, because of clouds, and yet you may see the Polare Starre, and the Starre of the lesser beare, remove ye handle on the back side to the hole of the lesser beare. Then lift up your instrument as before, and behold the Polare Starre at the hole, and turn the ruler to the foresaid Starre of the lesser beare, and you shall find the true houre of the night, as is before taught.

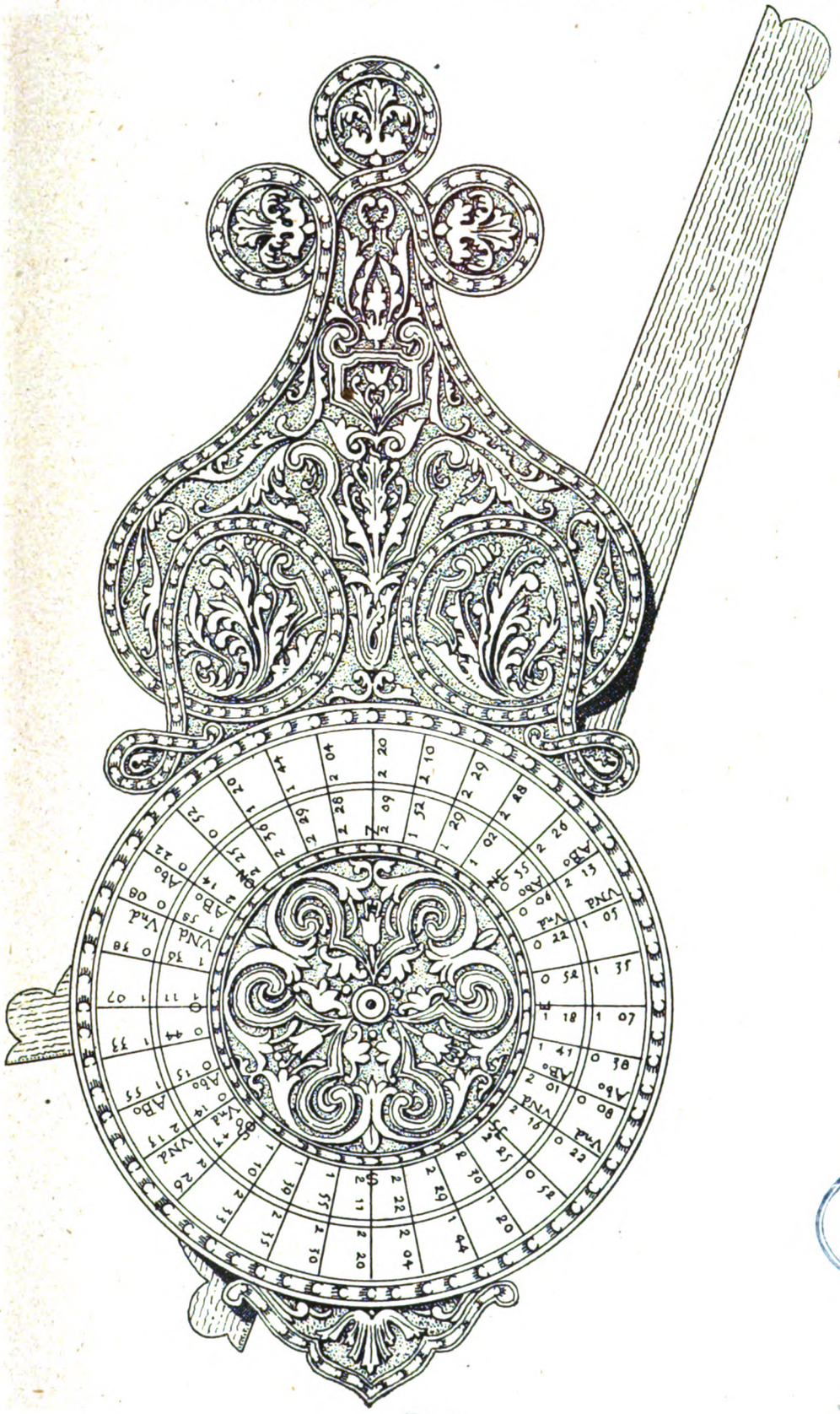


FIG 3.

No attempt at ornamentation of the earlier nocturnals, either English or foreign, seems to have been made, with the exception of the one by Humfrey Cole already described; and in the numerous works on the subject the diagrams given show nothing of the sort further than some slight elaboration of the handle. In Roias' book on astrolabes, published in 1550,[2] all the disks he shows have alike merely a simple strap ornament with a head to form the handle. The disks shown in the English publications of the seventeenth century, such as Blagrave's "Art of Dialling,"[3] and Moore's "System of Mathematics,"[4] are equally devoid of all

[2] Johannes de Roias, "Commentariorum in Astrolabium," &c. Lutetiæ. 1550.
[3] John Blagrave, "The Art of Dialling," 1609.
[4] Sir Jonas Moore, "A New System of Mathematics," 1681.

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decoration; while the brass universal dial and nocturnal made by Gaspar Vopel of Cologne, and dated 1551, now in the British Museum, except for a broad band engraved with the outlines of the constellations forming the Zodiac with their principal stars, has no embellishment whatever.

It would seem, however, that the first attempts ever made to give an artistic finish to mathematical instruments were due to German engravers, of whom the most important, or at least the best known in connection with this subject, were Wenzel Jamnitzer of Nuremberg, and Erasmus Habermehl of Prague, both of whom worked

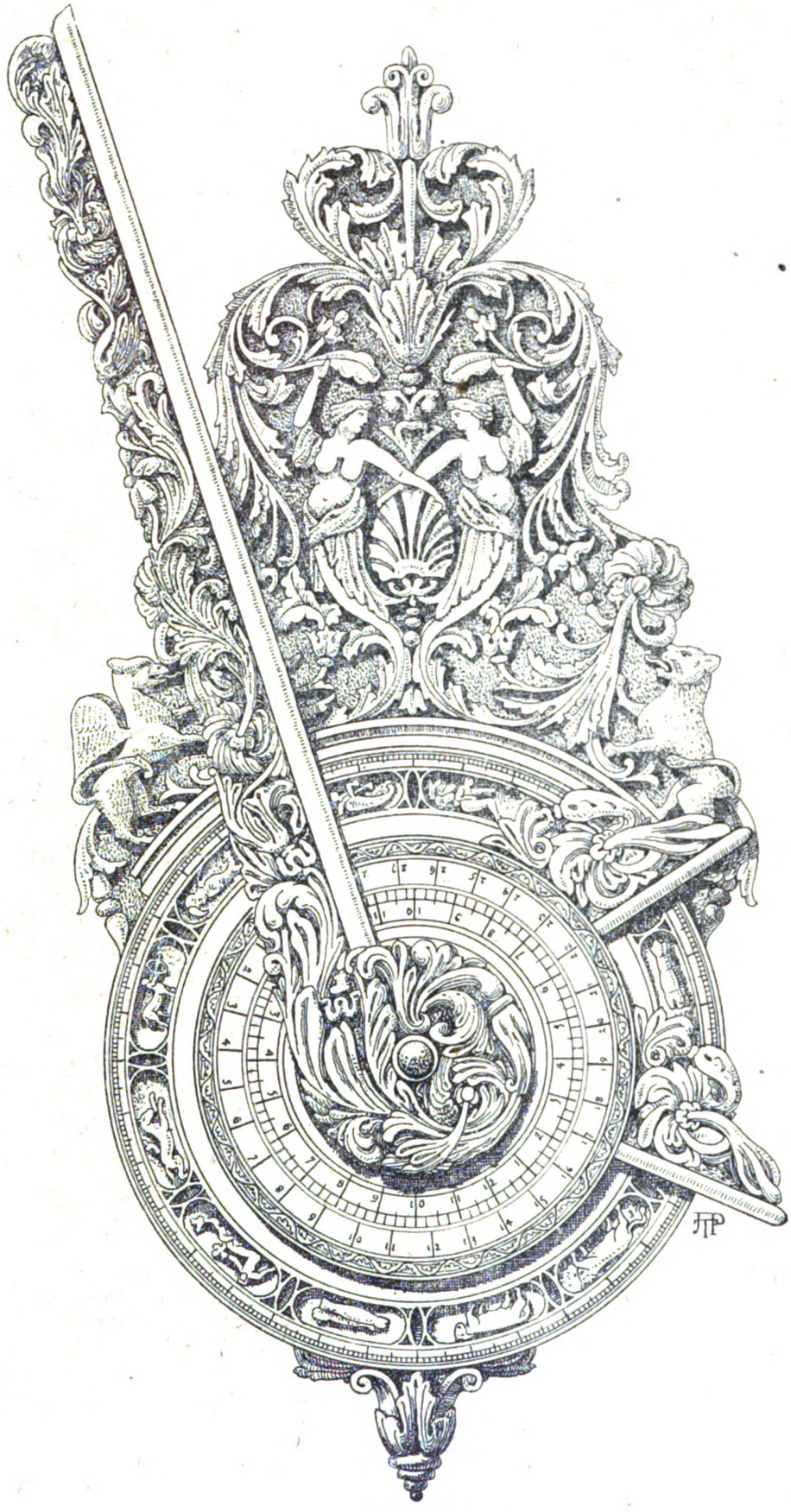


Fig. 4.

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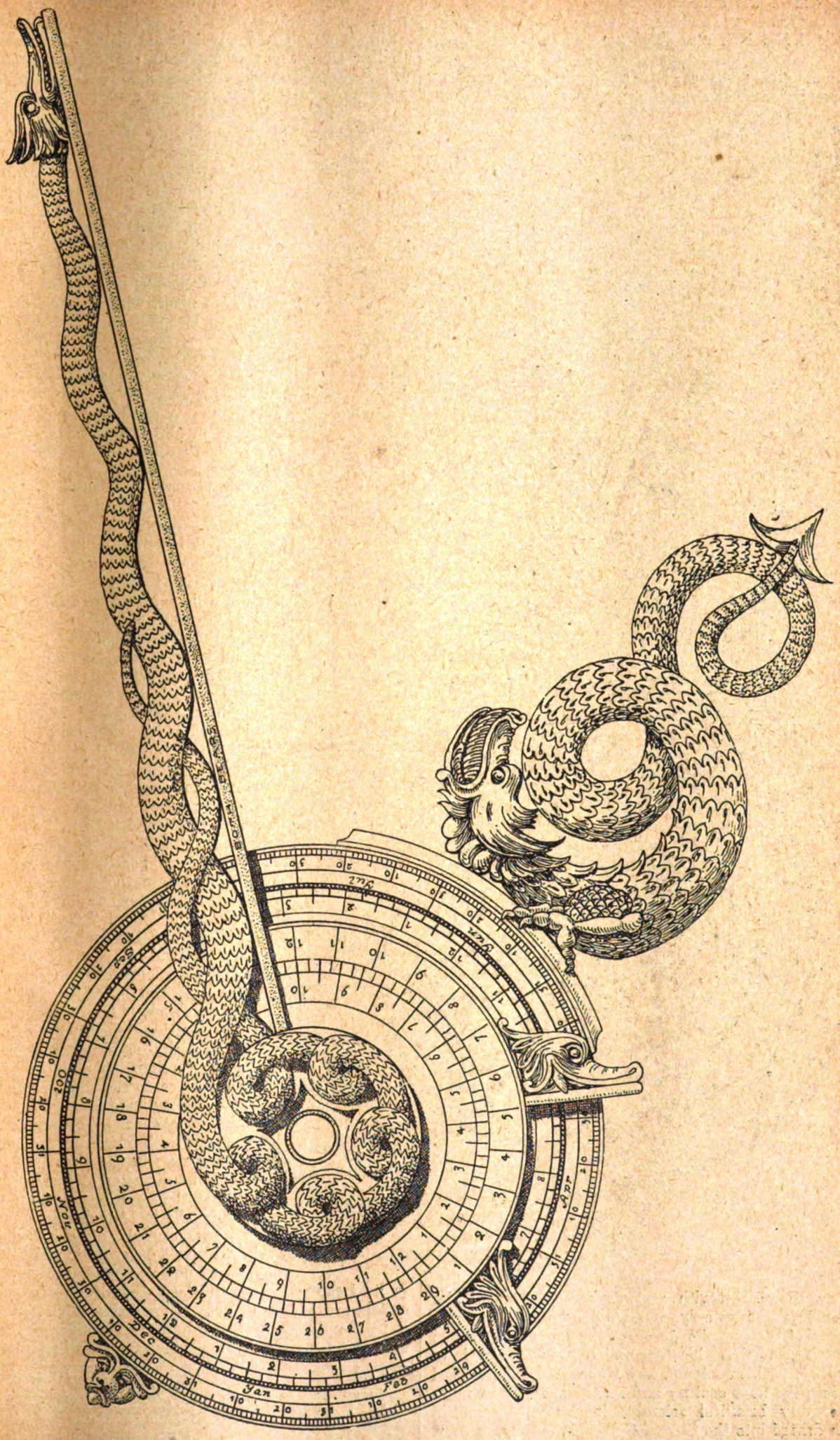


FIG. 5.

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at the end of the sixteenth century. The former of these, called by Dr. Max Maas, "The German Cellini," left a MS. completed in 1585 (now stored for safety's sake in the vaults of the Victoria and Albert Museum) giving an account of instruments used in astronomical and other sciences. His portrait by Jost Amman shows him with a planisphere in front of him engraved with lines only, but we cannot point out any example of instruments decorated by him; and we can only assume that his decoration was confined to engraving, for his contemporary Habermehl, who worked well into the next century and turned out a large number of very beautiful scientific instruments, some of which drifted into the Strozzi Collection, rarely, if ever, showed any relief ornament on his productions.

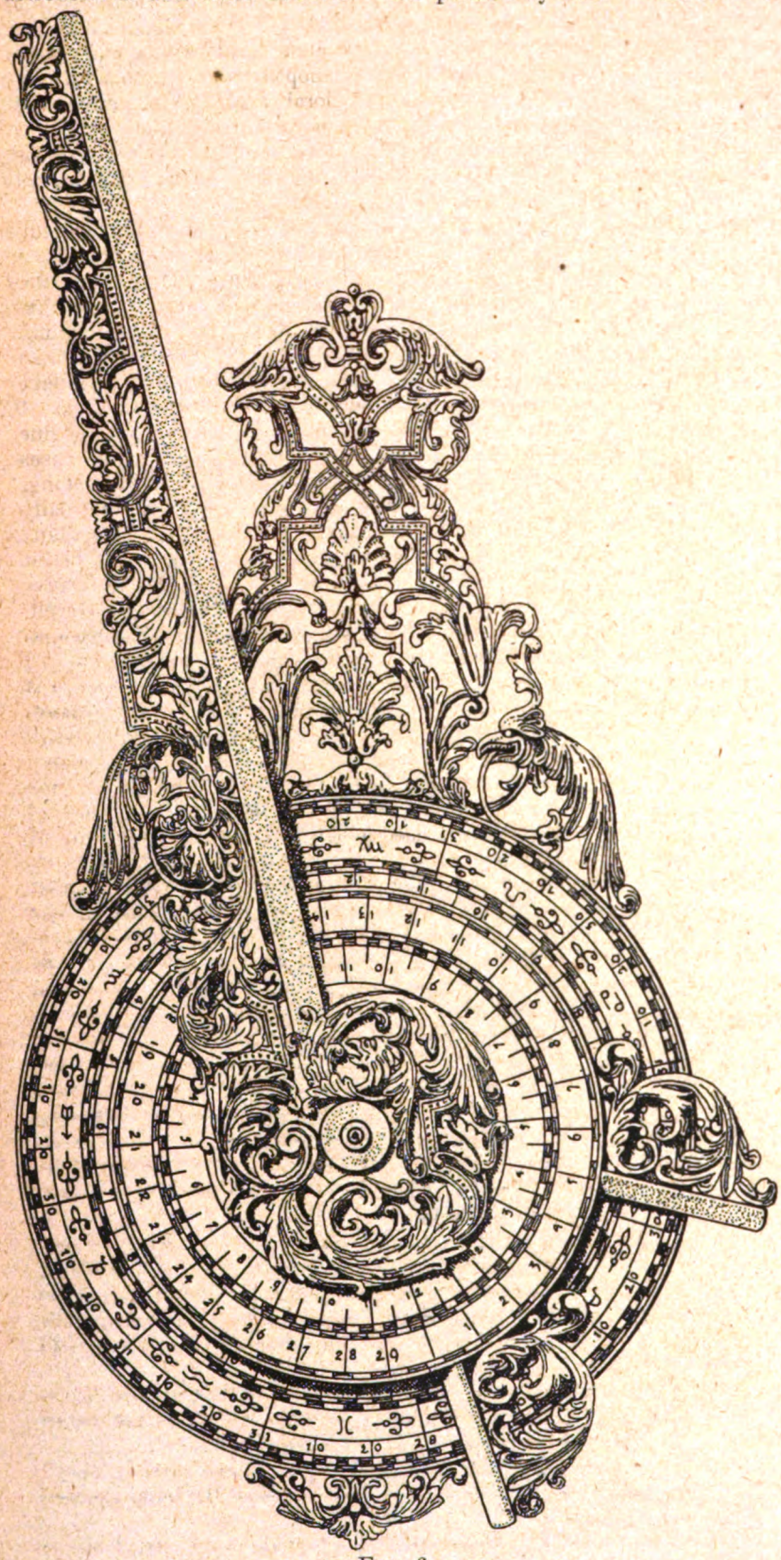


FIG. 6.

By the end of the seventeenth century we find that mere engraving has been superseded by work of relief, as in the fine dial on a rectangular plate, No. 171 in the Spitzer Collection,[5] which bears the inscription "Fecit Engelbrecht Beraunæ in Bohemia, 1684";[6] and there must have been much transition work between the two modes of treatment not now easy to identify. During this period the nocturnal underwent considerable changes in its form; the handles were greatly increased, so as to admit of considerable space for decoration, the index arm was made much more important, and the smaller projections for moving the disks became ornamental accessories; and the simple instruments, like that of Humfrey Cole, gave place, without impairing their utility, to elaborate and artistic productions such as those with which we illustrate this paper.

As a good example of one of these decorated nocturnals we give, in Figs. 2 and 3, the obverse and reverse of a specimen in chiselled and engraved steel now in the Science Museum, and acquired for the Department in 1879. Its provenance is unknown, although in the description it is ascribed to this country, merely, apparently, because of some of the lettering inscribed on it. A comparison of it, however, with the square dial already referred to by Engelbricht of Beraun will give reason to consider the work as German; but if, in the absence of any inscription, it cannot be ascribed to him, at least it may be to one of his contemporaries. The treatment of the Zodiacal signs in the cartouches, as well as much of the engraved ornament, is identical with his work, the difficulty being that the words "abo" and "und," repeated four times on the reverse, and presumed to stand for "above" and "under" respectively, as well as the letters "G.B." and "L.B.," for Great Bear and Little Bear, are not German, though these could easily have been added after it came into the possession of an Englishman. A further difficulty is in the use of the letters "O.," "S.O.," and "N.O.," on the reverse, for West, South-West, and North-West, suggesting rather a French origin, and causing it so to be described in earlier editions of the catalogue; but it is perhaps easier to explain away this difficulty also than to accept the design as either a French or English conception. It must be pointed out in reference to the markings on the reverse that they were intended to aid in determining latitude by observations of the positions with reference to the Pole Star of the stars in the Great and Little Bears. The diameter of the dial is 6¼ inches, and the total length of the piece over the handle is 14 inches.

Another example of chiselled steel work which we give in Fig. 4 is altogether different and more artistic in its treatment than the last, and of even more uncertain provenance. There was one almost identical with it in the Spitzer Collection, the main difference being that mermen are substituted for mermaids in the centre

[5] La Collection Spitzer. "Les Instruments de Mathématiques." Notice par M. Alfred Ernst.

[6] It is interesting to note that a brass movable sun dial in the Science Museum bears the same inscription, but with the date of 1784, thus showing that a member of the same family was engaged in similar work in the same town a century later.

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of the handle, and M. Ernst describes it as French work of the seventeenth century. That one, as well as this, has had the centre hole stopped up with a rivet, destroying its use as a nocturnal, and the piece was then described as a perpetual calendar. This particular nocturnal appeared for a time in the sale rooms of Messrs. Lempertz, of Cologne, in 1887, and its present resting-place is unknown to the writer. It measures across the dial 7 inches, and its total height is 11½ inches.

A nocturnal in the Victoria and Albert Museum, of which we give a drawing of the face in Fig. 5, though in chiselled steel, is of so remarkable a character as to cause it to be ascribed by some to an Oriental fabrication. The creatures forming the index arm and the handle are chiselled out in the round, the scales of the beast near its head on the handle, as well as its mane, being bent out with a curved serrated edge. Many of the lines on the dial are damascened in silver, and the band of little dots near the margin is worked in gold. This was bought in 1893 for the Department at the Spitzer sale, and M. Ernst describes it in his note as English work of the sixteenth century, while the Victoria and Albert Museum catalogue describes it as a late seventeenth or early eighteenth century production. Curiously enough, the Science Museum possesses a replica of this, without the damascening, in gilt brass or copper. The diameter of the dial is 4⅜ inches, and the length over the handle 8¾ inches.

The last example which we give in Fig. 6 is also from the Victoria and Albert Museum, and was acquired by purchase in 1879. It is of copper gilt, pierced, chased, and engraved, of very delicate finish, and considered to be French work of the seventeenth century. One almost identical, if not a replica, was sold from the Spitzer Collection in 1893. The diameter of the dial is 5 inches, and length over the handle 12 inches.

We are fortunate in possessing in London so many examples of these curious instruments of a bygone age: it is not a little singular that the earliest and plainest work of the Renaissance period is to be found in the Mediæval room of the British Museum, while the Science Museum contains many of most artistic work, and the Victoria and Albert Museum has but two, both of which we illustrate.

PERONNE AND HER NEIGHBOURS.

By E. SWINFEN HARRIS.

See Illustrations.

SOME years ago now, on my second visit (inter alia) to Noyon, I elected to return home through Belgium, via Peronne, Cambrai, Douai, Arras, Lille, Armentières, and Ypres (names all sadly familiar to us now); and, though then and since trading rather than taste seemed to be the main thing, and much of the country flat, swampy, uninteresting, and in parts coal-grimed and dirty, in Artois and French Flanders I still managed to find very much of interest in spite of the fact that the commis-voyageur rather than the architectural student was my vis-à-vis in the train. On my journey towards Peronne I passed, at Pont lès Brie, a charming old moated château, and, on reaching that town, I visited the magnificent church of St. Jean, a noble inspiration for a large town church, cruciform with simple apse of a good scale, having three sides only. The northern transept, dedicated to St. Fursy, contained a curious painting of "Louis IX. (Saint Louis) assisting at the translation of that saint's body," but erroneously described in my guidebook as Louis XI. (a different character altogether) doing the like office for St. Farcy. This magnificent and grandly planned church, clean and with excellent sculptures, a Jesse Tree window, a fine belfry tower, and last, but not least, a noble organ at its west end, from the loft of which I was most kindly invited to witness while hearing it an interesting service by the genial organist, a brother of the then Bishop of Limoges; he was naturally very proud of his organ, which had four manuals and a very fine Vox Celeste. One noted the great beauty of the mouldings throughout, as also of the windows, the hood mouldings of which terminated in carved finials, richly crocketed, and passing through the sills over them.

Readers of "Quentin Durward" will recollect that it was at Peronne that the scenes between Louis XI. and Charles the Bold took place. I noticed en route the marshy character of the Somme, and arriving at Cambrai visited the tomb of Archbishop Fenelon, laden with ever-present immortelles and floral wreaths, and later heard in it a salut, accompanied on yet another fine organ; also the tower of St. Martin, the church of St. Gery, and the fine modern Hotel de Ville, finishing the day with a stroll in the very beautiful Public Gardens.

Reaching Douai on the following morning, a kindly cleric piloted me round his cathedral, with interesting triptychs, &c., afterwards seeing the Hotel de Ville, which abounded in good old portrait pictures. What took my fancy most, however, was a very curious column supporting centrally the hall over it. There is (or was) a magnificent belfry tower. The cathedral of St. Pierre then possessed some good modern religious paintings. I went thence to Arras: it had two very large and fine squares, known as Grand and Petit Places, all the houses of which were old and interesting, with good arcading. The Hotel de Ville had a noble tower, and internally abounded in modern oak panelling, and the whole thing was of the best. The Chapelle des Ursulines, which I visited, had a good spire. I also found some good pictures at the church of St. John Baptist, a spacious church. There was a very interesting old house of the thirteenth century in the Grand Place. The spacious cathedral had an old triptych, and a fine monument of Cardinal de la Tour d'Auvergne in the Chapel of St. Vaast (Vedast), and another excellent one of a bishop of the sixteenth century. I then walked out to visit the fine modern Chapel of St. Sacrament, and, en route for my train, was much interested in the fine fortifications, the work of Vauban, and very deep dykes flanking the way to it. I reached Lille, and on the following morning saw many gold-ground and other paintings, many of great interest, in the Public Collection, and the painted bust in wax ascribed to Rafaelle; also the old portion of the Mairie, temp. 1430. The gem architecturally here is, or was, the church of St. Maurice, Flamboyant with a fine plan, and an admirable colour scheme in its windows, the traceries being full of colour and figures, all else with quarries and borders only. The traceries were very varied, the many apses at the east end finely grouped, and the whole well and not over-restored. The day following I passed through Armentières for Ypres, which I revisited, reaching Bruges (which with many other parts of Belgium I had, and have, visited again more than once), and so home.

By the common or uncommon things worn or seen we are reminded almost daily of many Continental places, to wit Troyes (troy-weight), Ghent (gloves), Cambrai (cambric), Valenciennes (lace), Arras (hangings), Lille (thread), and Ypres (diaper). Possibly there are still others.

There is singularly no mention of Peronne by Viollet le Duc, nor of Douai or Armentières (the last-named omission can, however, be understood).

Many of our illustrated papers have already shown the irreparable damage done to some of the buildings here mentioned.

The Flamboyant treatment at Peronne struck me as unusually vigorous, quite devoid of mere fussiness, and in no sense "wiry," as I hope my poor sketches all too feebly show.

In at least one aspect that style resembles our own late Gothic in that very few miles apart reveal various influences over and effects upon it, often difficult to account for or explain. Auch, N. D. de Brou at Bourg, Rouen, and Normandy generally, Limoges, and Touraine St. Bertrand de Comminges, Lyons, &c., are certainly in no sense mere imitations of each other, each vicinage having its own peculiarities and virtues (and perhaps

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vices also). Again, take the late Gothic work of Britanny; it, too, is quite a thing of itself. In a word, what we speak of as the "County type" is here also. Even the term Flamboyant is indefinite, being only reliable when applied to tracery.

As France approaches Belgium there seemed less and less evidence of thrift: probably because wealth and wages at the time of my visit were on the increase in the direction I was moving, which brought with it the false idea that it was no longer a necessity: as to that, we know better now. There was also in the same direction a lack of visible courtesy.

Peronne *la pucelle* was its early proud name, but it has four times been robbed of its claim to it. May this be the last!

In conclusion, if at the end of this cruel strife it be left to us as it then was, architects may even yet have one good cause for rejoicing. They have been as hardly hit as many, if not harder than most; and, like the rest of our civil population, they crave for something to cheer them. Our brave sailors, soldiers, and airmen are certain to get it: they well deserve to.

WATER SUPPLY OF ANCIENT ROME AND NEW YORK.*

By W. J. E. BINNIE, B.A., M.Inst.C.E., F.G.S.

(*Concluded from last week.*)

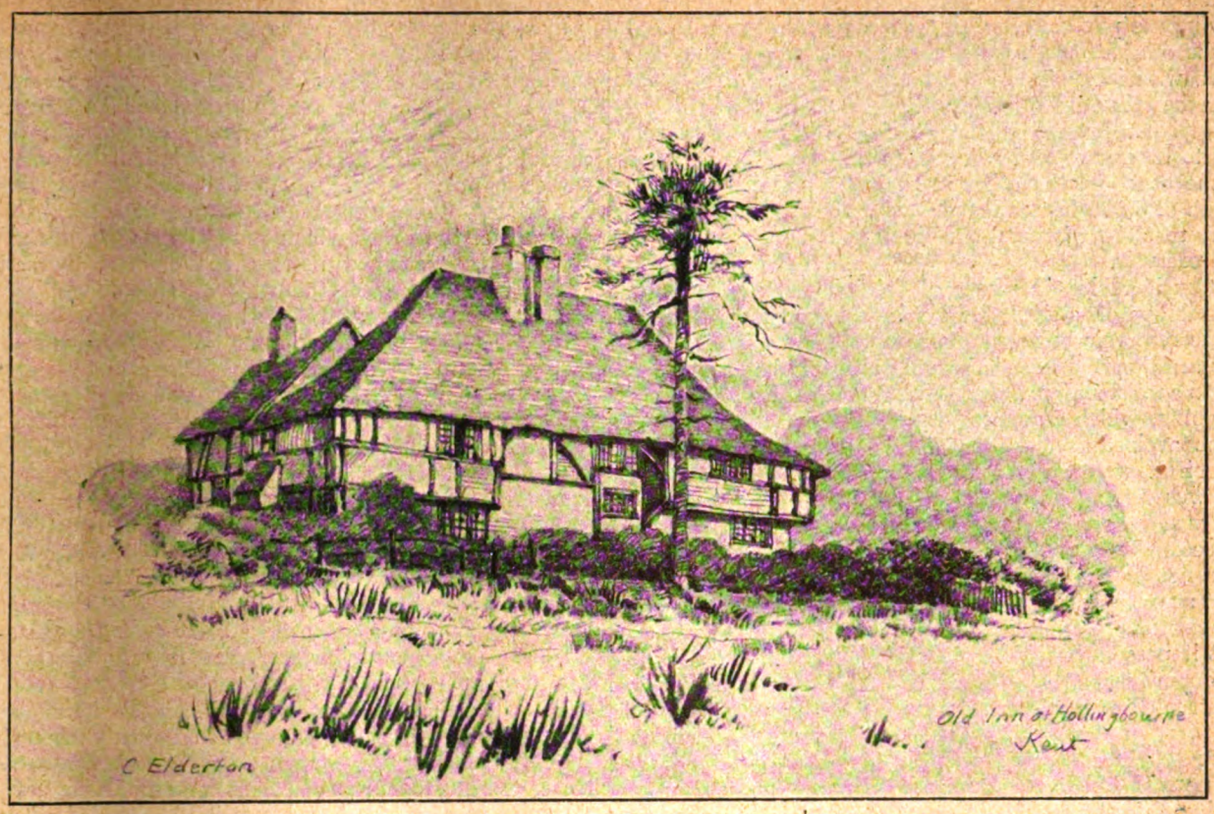
TURNING now to the greatest work of modern sanitary engineering—namely, the water supply of the city of New York from the Catskill Mountains. Before commencing this gigantic work preliminary investigations were undertaken by means of boreholes on a scale which was truly colossal, and by 1910 the length of core boring and pits for trial purposes aggregated nearly 33 miles, so that for every mile of the aqueduct there was over one-quarter of a mile in depth of boring and trial pits. As an example of the magnitude of some of this preliminary work, I cannot do better than refer to the boreholes at the proposed crossing under the River Hudson. It was decided to cross the Hudson at Storm King, and at the point of crossing the hydraulic gradient would be 400 feet above the level of the river, which at that point was over half a mile wide. The Hudson now flows in a valley filled with waterborne deposits of sand, gravel, boulders, clay, and silt, the maximum depth of the water in the river at the point of crossing being about 100 feet, and it was known that the rock in which the old river had eroded a channel was overlain by a great depth of these deposits. There were four possible methods of crossing: (1) By a bridge 150 feet or more above high-water level to carry steel pipes; (2) steel or iron pipes laid in trenches dredged in the river bottom; (3) shield-driven tunnels under compressed air at a depth not greater than 100 feet below water level, steel lined or containing pipes; (4) a pressure tunnel deep in sound rock. Of the four methods the pressure tunnel—*i.e.*, a tunnel designed to carry water under pressure—would be the cheapest and most durable, and the problem to be solved was the location of the surface of the rock as, owing to the internal water pressure to which the tunnel would be subjected, it was necessary to be deep in sound rock. Borings were started from barges in the ordinary way, but the difficulties proved almost insuperable owing to the swift currents, heavy traffic on the river, short working season, and the great depth at which the rock lay, so that after four years of drilling only six holes reached the rock below the river channel. The borehole near the centre of the channel did not meet rock, and was abandoned at a depth of 768 feet. It was early realised that vertical borings would only give inconclusive evidence as to the rock profile under the Hudson River, and the drilling proved so slow that it was evident that enough boreholes could not be put down in time to give even a fair estimate of the depth of sound rock underlying the river. Two shafts were therefore sunk, one on each side of the river to a depth of 1,100 feet, chambers being formed in the sides of these shafts at a depth of about 250 feet below the surface; and inclined boreholes were started from these chambers, which were to cross each other under the river and so determine whether solid rock was continuous. The first two boreholes were driven at such an inclination as to cross each other at a depth of about 1,500 feet below the surface. They were commenced in 1909, and the borehole from the east shaft, which was 1,834 feet long, took seven months to complete, that from the west shaft, which was 2,052 feet long, taking eight months, both boreholes being completed by March 1910. These holes, which were bored by diamond drills, were commenced four inches in diameter, and gradually decreased to one and seven-sixteenths of an inch; 55 per cent. of the core was recovered from the bore at the east and about 66 per cent. was recovered from that at the west shaft. These boreholes showed that solid rock existed right under the Hudson at that depth, and two further boreholes were then commenced, which were completed in August 1910, after four months' work. These boreholes were inclined at an angle of about 23 degrees to the horizontal, and intersected each other at a depth of about 960 feet below the surface, the length of each being about 1,620 feet. The core recovered amounted to about 70 per cent., and the fact was established that if the tunnel was driven at a level of 1,100 feet below the surface it would lie deep in solid rock, and therefore this was fixed as the level of the tunnel below the river. The cost of these boreholes was about £12,000, and it was felt that the money was well spent, as previous experience with the Croton Aqueduct showed the necessity of ascertaining the nature of the strata beforehand, as a considerable length of tunnel under the Haarlem River had to be abandoned and reconstructed at a lower level owing to a deep channel in the rock, which was only discovered when reached by the tunnel.

Turning now from preliminary investigation to the actual scheme as it was carried out, a gigantic reservoir called the Ashokan Reservoir was constructed primarily to store the waters of the Esopus and Beaver Kill, the former river being impounded by the Olive Bridge masonry dam, the latter by means of embankment. The Esopus watershed is 245 square miles in area, and the Beaver Kill 17 square miles, and these drainage areas are estimated to yield 250,000,000 gallons per diem. In addition to the Esopus and Beaver Kill, three other sources can be made contributory to the scheme—the Rondout, estimated to yield 115,000,000 gallons per diem; the Schoharie, estimated to yield 136,000,000 gallons per diem; and various drainage areas situated in the Catskill Mountains, estimated to yield 149,000,000 gallons; giving a gross total of 660,000,000 gallons per diem. The Ashokan Reservoir can make provision for part of the yield of the Schoharie and Catskill watershed, which are not yet made contributory to the scheme. The total storage provided by this reservoir is 130,000,000,000 gallons, or ten times the quantity which can be stored in the Vyrnwy Reservoir of the Liverpool Corporation, the largest artificial reservoir yet constructed in this country; and as the aqueduct is designed to discharge 500,000,000 gallons a day, the reservoir capacity is 254 days' supply of the discharging capacity of the aqueduct.

New York already has two sources of supply, the Croton and the Bronx, which are estimated as being capable of yielding about 400,000,000 gallons per diem, so that with the additional supply afforded by the Catskill scheme, New York will have a supply amounting to approximately 900,000,000 gallons per diem. Some idea of what this means can be realised when it is remembered that the average natural flow of the Thames at Teddington Weir is 1,100,000,000 gallons per diem. The population of Greater New York is about the same as that of Greater London, but New York requires 100 gallons per head of population per diem, whereas London is

* A Presidential Address delivered before the Institution of Sanitary Engineers.

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content to put up with less than 40, consequently the total quantity supplied to London is only about 250,000,000 gallons per diem.

The sheet of water formed by the reservoir is over 11 miles long, and the maximum breadth is over 2 miles, the water area when the reservoir is full being about 16 square miles. The total length of masonry structures and embankments which were necessary to impound the water is over 5½ miles, but the length of masonry included in the above is only 3,100 feet, the remainder being embankment. The Olive Bridge masonry dam closes the Esopus gorge, the water impounded having a maximum depth of 190 feet. We have no masonry dams in this country to compare with it, as the Penygarrig Dam of the Birmingham Corporation, the highest yet constructed, only impounds a maximum depth of 123 feet of water. The structure has a length of only 1,000 feet, and the masonry above ground level is broken up into divisions by means of vertical joints spaced 80 to 90 feet apart to prevent cracks through the dam due to changes of temperature. The masonry at the expansion joint is so formed that the two abutting sections of the dam interlock by means of tongues and grooves, and a vertical inspection well placed about 18 to 20 feet from the water face traverses the joint, affording the means of inspection and also of closing the joint if leakage should prove excessive. The vertical wells discharge into a longitudinal culvert, which communicates with a gallery discharging into the gorge below the dam. Another longitudinal gallery connects the wells at about top-water level. In addition to these inspection wells, 16-inch diameter vertical holes are left in the dam spaced about 12 feet apart and surrounded by concrete so formed that any water which finds its way into the masonry would be intercepted and led away. These arrangements were made in order to prevent the uplifting effect of the water, which is bound to occur if it penetrates a horizontal crack or fissure in the dam. Novelty is claimed for this method of construction; but, as a matter of fact, the late Dr. Deacon provided similar joints more than twenty years ago when designing the Upper Neuadd Dam for the Merthyr Tydfil Corporation, except that in that case asphalt was used at the joint to prevent leakage and there were no vertical inspection wells.

The Olive Bridge Dam is founded on hard bluestone rock, and the excavation was only carried to a moderate depth below stream bottom. It is of ordinary section, the total height above the stream level being 210 feet, and the maximum thickness at the base 180 feet. It carries a roadway 20 feet above overflow level, and flood water escapes from the reservoir by means of a waste weir 1,000 feet in length, which is located elsewhere. It was built of cyclopean masonry in the ordinary manner—*i.e.*, large blocks of irregular shaped stone bedded in concrete, and was faced with moulded concrete blocks.

The several embankments required to fill up other valleys and gorges before water could be impounded in the reservoir follow the usual American practice in construction, which differs somewhat from that obtaining in this country. In order to prevent water from leaking either through or under an embankment longitudinal core walls or watertight diaphragms are introduced traversing the centre of the embankment, which walls are carried down to the solid rock, or an impermeable stratum, and in this country puddle clay is the material employed for the construction above ground, the cut-off trench below ground being generally filled with concrete. American engineers employ concrete for the core wall both above and below ground, and all the embankments of the Ashokan Reservoir are so provided. The reason for avoiding the use of concrete above ground in this country is because cracks in the concrete due to changes of temperature or other causes are to be anticipated, and water would tend to find its way through these cracks, whereas clay puddle, if kept moist, does not crack. Puddle however, if it is to prevent percolation, must be good throughout, as the water will find the weak spot, and once erosion starts the embankment is doomed unless the reservoir can be emptied in time to prevent disaster. Concrete on the other hand, does not erode, and therefore any leakage through any small cracks tends to become blocked up by means of the embankment material carried into the crack by the water. The maximum height of the embankment was at the Beaver Kill Gorge, where the top was 115 feet above the bed of the stream, the foundations of the core wall going down to a depth of about 70 feet below the ground surface.

The reservoir is divided into two basins by means of

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a weir about 100 feet long and an embankment, the weir serving the purpose of passing overflow from one division to the other. The intake chamber is situated in this bank, with inlets from each basin, and two culverts one over the other are placed in a trench below the bank for conveying the water to the aqueduct, and two channels had to be excavated leading to this intake chamber, one in the east and the other in the west basin, for a total length of 8,800 feet and a maximum depth of 80 feet, in order to allow of the water level being drawn down in the reservoir.

Considerable difference of opinion existed as to the advisability of stripping all vegetable soil from the site of the reservoir before impounding. It was finally held that aeration and filtration would probably be required to obtain a satisfactory water, and that therefore the cost of stripping, which amounted to one million sterling, was to be avoided, seeing that it would have no beneficial effect if the water was aerated and filtered. The reservoir site was not stripped, and special aerated nozzles were designed to fountain the water into thin fins through the air before it entered the aqueduct, but hitherto filters have not been provided. The outlet from the reservoir is so arranged that the water can be passed through the aerators or not as desired, and before entering the aqueduct it passes through a gigantic Venturi meter, so that its quantity can be measured. The Venturi meter is constructed of reinforced concrete, with the exception of the throat and measuring ring castings, its total length being 400 feet, the waterway changing gradually from the normal aqueduct section to a circular bronze throat casting 7 feet 9 inches internal diameter, the pressure tubes being connected one to the throat casting and the other to another circular bronze casting 17 feet 6 inches in diameter situated 30 feet at the upstream side of the throat. The Venturi throat is depressed so that it is under a head of 25 feet, the ratio of contraction being about 5 to 1. Three other Venturi meters and several gauge chambers are provided at various points along the line of aqueduct, so that the amount of leakage between different points can be readily determined. The outlet pressure culverts terminate in a battery of 48 inch pipes provided with special non-chattering valves, and the ordinary regulation of flow is by means of these valves, an overflow weir 100 feet long providing for the escape of water should flow decrease in the aqueduct before the corresponding regulation of the valves can take place.

As the water level in the reservoir would generally stand much above that in the aqueduct, turbine machinery has been introduced for the purpose of utilising the head available for the production of electricity to give light and power for local service.

Some idea of the magnitude of the headworks can be gathered from the following figures:—The work was let in several contracts, the chief of which covered 2½ million cubic yards of excavation, 7½ million cubic yards of embankment, and nearly one million cubic yards of masonry construction.

Having now given a description of the headworks, I must pass on to the aqueduct and deal with it somewhat more briefly, as I fear that I have already somewhat exhausted your patience. The total length of the aqueduct from the Ashokan Reservoir to Silver Lake Reservoir is about 126 miles, and the average fall about two feet per mile. It is full sized until the 111th mile is reached, being at this point under New York City, where it commences to diminish in steps as water is taken off till it enters the Silver Lake Reservoir as a 48-inch cast iron pipe.

The chief feature of novelty, as far as English practice is concerned, is in the extensive use of pressure tunnels in lieu of pipe syphons. These tunnels are sometimes subjected to enormous pressure, the one constructed under the Hudson already referred to having to withstand an internal pressure due to a head of 1,500 feet of water, which is equal to an actual crushing strain on the concrete lining of over 40 tons to the square foot, and, as the internal diameter of the tunnel is 14 feet, and the thickness of the concrete only averages 17 inches, the tension in the concrete, if there was no external pressure to resist it, would amount to 200 tons to the square foot. These figures show how absolutely necessary it was that the tunnel should be driven in solid rock at a sufficient depth, and explain why such careful preliminary investigation was essential before the work was put in hand. Some difficulty was experienced in driving this tunnel on account of the enormous pressure of the water which found its way in under the Hudson and rendered useless the ordinary method of grouting to seal back the water. This difficulty was successfully surmounted by special apparatus designed to inject Portland cement grout under pressure as high as 600 pounds per square inch. The actual maximum water pressure recorded was 470 pounds per square inch, and supposing the water bearing seams had not been sealed up and that the water could work its way behind the lining and between it and the rock, the crushing strain thrown on the concrete would amount to 170 tons per square foot, when the syphon is empty, and it requires very good concrete indeed to stand this pressure without crushing and considerable courage on the part of the engineering staff to design the tunnel, so that there was a possibility of its being submitted to such strains. I believe, however, that the Hudson syphon has proved satisfactory, although I see from the engineering press that a pressure tunnel immediately adjoining it, and which was subjected to only about half the internal head, has shown signs of weakness necessitating the abandonment of a short length of tunnel, which is being constructed at a lower level. This failure is attributed to local yielding of the gneiss rock in which the tunnel is driven, which allowed the concrete to be forced back under internal water pressure, causing the lining to crack, with consequent leakage of water.

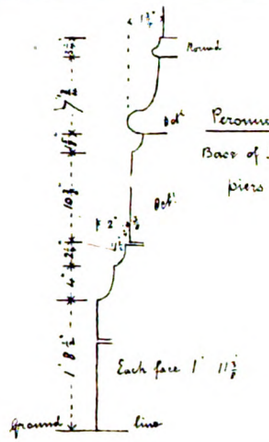
The aqueduct consists in part of concrete cut and cover construction, following the hydraulic gradient, horseshoe shaped in cross section, and having a waterway of 241 square feet or more than twice that of an ordinary tube railway tunnel. The concrete construction is covered with a bank having a width of 15 feet and side slopes of one to one and three-quarters, there being 3 feet of cover over the crown of the aqueduct. This is the cheapest form of construction, costing a little under £12 per foot run, and about 51 miles was built of this type.

The pressure tunnels which have already been referred to were employed for a total length of 35 miles at seven different points, and it is an expensive type of construction, costing nearly £30 per foot run. Owing to the fact that these tunnels are subjected to internal pressure, the waterway is circular, 14 feet 6 inches in diameter, giving a cross sectional area of 165 square feet, the hydraulic gradient being arranged so as to give the higher velocity necessary to discharge the same quantity of water as the cut and cover type. The longest pressure tunnel is that under New York itself, where the length is about 15 miles. The enormous pipes necessary to carry such large volumes of water were out of the question under the streets of New York, already taken up with pipes, cables, tramways, subways and sewers, and this pressure tunnel deep in the rock was really the only feasible method of solving the problem at anything like a reasonable cost. The water is conveyed to the surface through pipes connecting with the tunnel below at various points, there being twenty-six connections 4 feet in diameter and six connections 72 inches in diameter, the pressure in the mains at street level being from 80 to 100 pounds per square inch. The Crotan Aqueduct is a pressure tunnel 33 miles long, but the maximum internal pressure to which it was subjected was only about 180 pounds per square inch. The low maintenance charges of this aqueduct was an important factor and determined the use of pressure tunnel instead of pipes when the conditions were suitable.

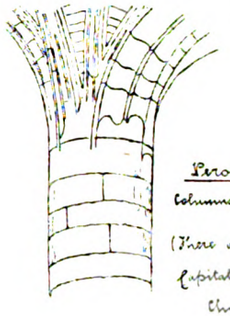
In addition to the tunnels under water pressure, there were twenty-four tunnels through mountains constructed

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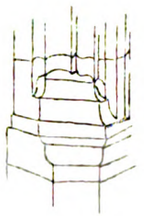
Sketches at Peronne, Douai, Arras, and Ypres.



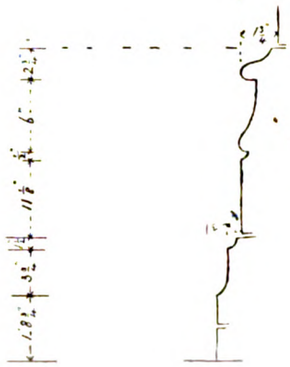
Peronne
Base of Nave piers



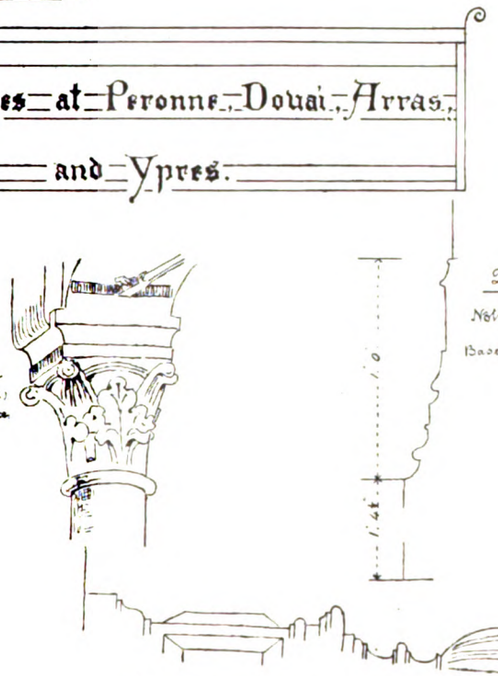
Peronne
Columns of Nave
(There are no Capitals in the Church)



Peronne
Stob to Archmold under Bell Tower



Peronne
Base to Half Column receiving vaulting ribs North Aisle



Douai
Base to Shaft of Column supporting floor over stair
This is full 20ft high its diameter at E 1' 8"
There are 16 deep flutes between D D and these continue into the shaft below

Douai
Nôtre Dame
Base. West Door

Arras
Granite cap and Monolithic shaft to Arcade in House (13th Cent.) in the Grande Place



Ypres
Doorway to Belfry of Cathedral

Ypres. Cathedral
Base Mould to Tower. this also continues round Stair Turret



Ypres Cathedral



Ypres Cathedral
Linen Panel in Inner Porch of South Transept

YPRES Brass Balusters round S. Chapel at the West End of the Cathedral of Saint Martin Height about 5 feet

Jan. 1917.

E. Swinfen Harris mons et del
Stony Stratford

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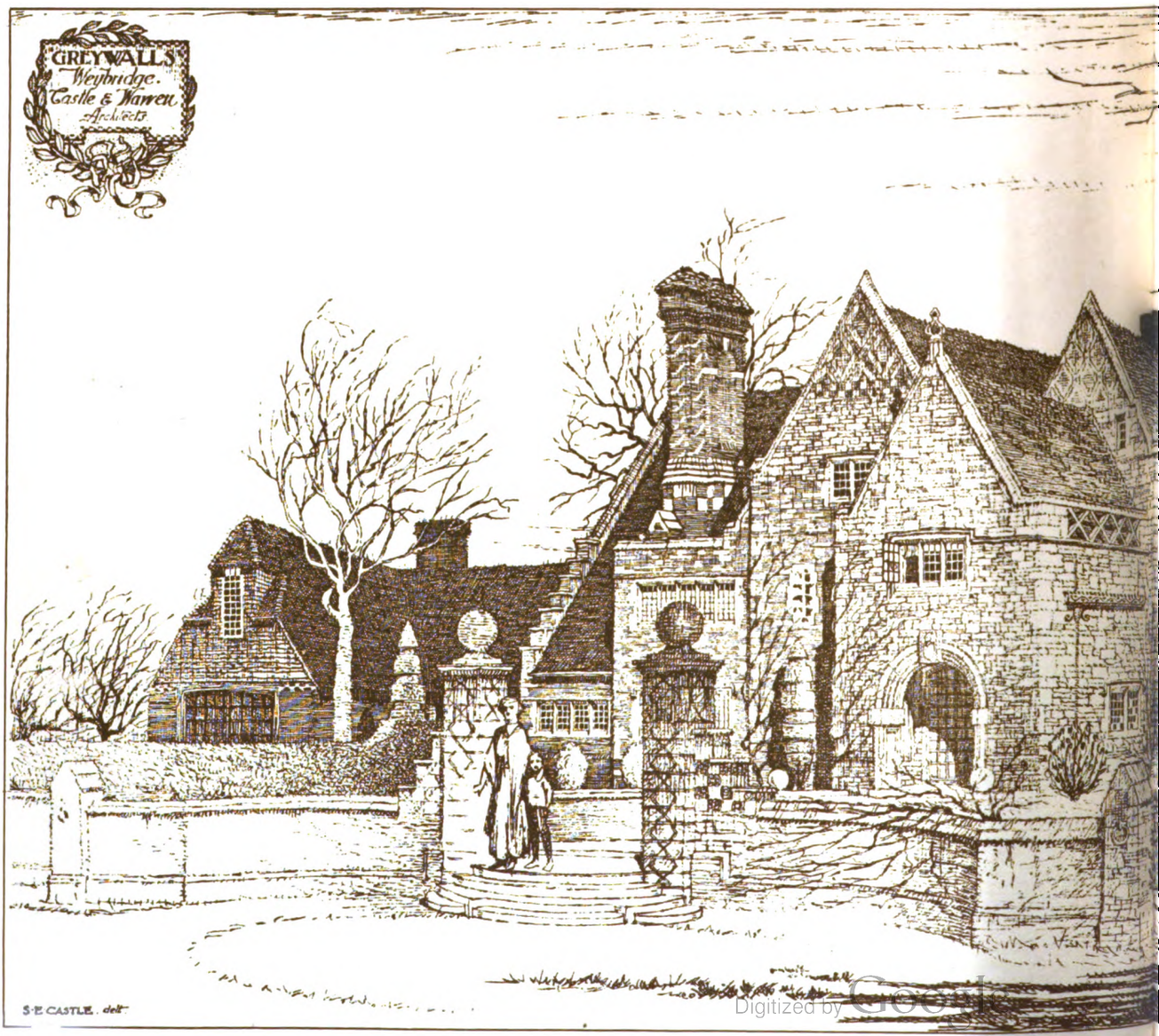
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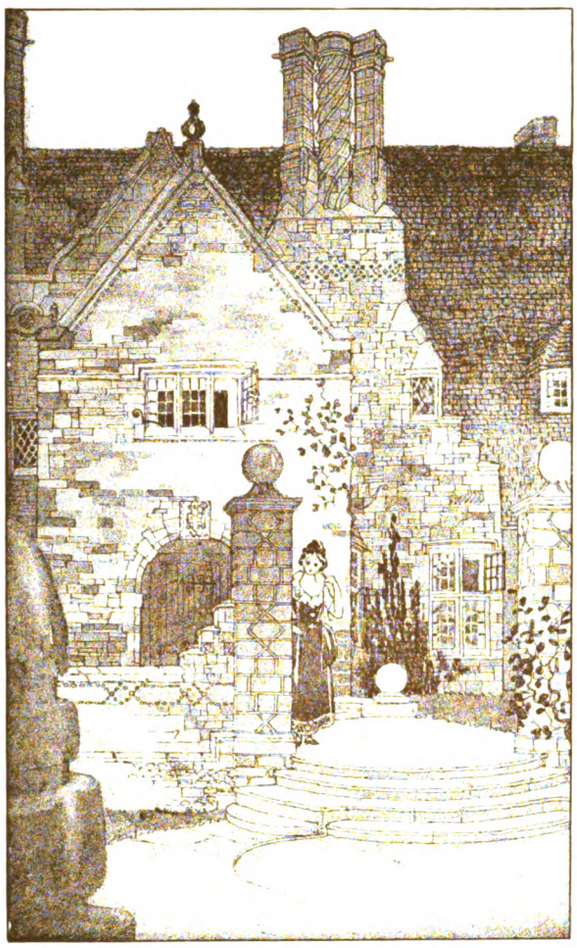
(Royal Academy Exhibition, 1914.)

THE GARDEN FRONT.



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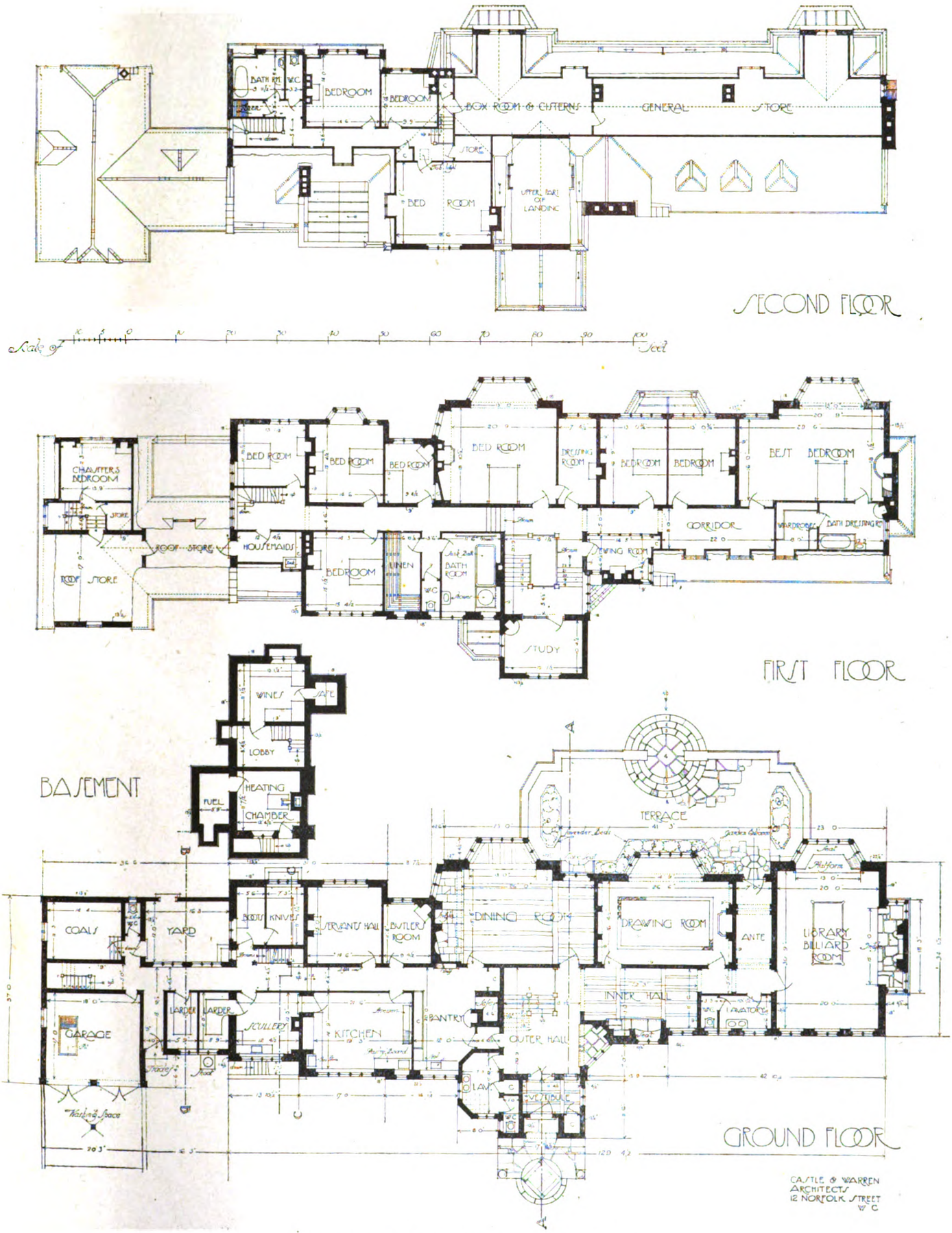


THE PORCH.



INK PHOTO SPRAGUE & CO. LTD. 69 & 70 DEAN STREET SOHO W.

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"GREY WALLS," WEYBRIDGE.

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on the hydraulic gradient and called grade tunnels, the longest being a little over two miles and their total length being 14 miles. They were constructed of horseshoe section, having a waterway of 199 square feet, and cost about £22 per foot run, being therefore nearly twice as expensive as the cut and cover and about three-quarters as costly as the pressure tunnels.

Pipe syphons are used to the extent of about six miles, and cost about £17 per foot run. Generally speaking, only one line of pipe, of rivetted steel 9 feet 6 inches in diameter, to deliver 250,000,000 gallons per diem, was laid in the first instance, provision being made for two others to be added when required. It would thus appear that for a syphon to carry the same amount of water, there would be very little difference between the cost of the pressure tunnel and the steel pipes. The maximum head to be carried was 360 feet of water, and the steel varied from seven-sixteenths of an inch to ¾ inch in thickness, the maximum stress being rather over 5 tons per square inch of the steel. A pipe so thin in relation to its diameter requires, of course, additional support, which was provided by means of concrete backing varying from 6 inches to 18 inches in thickness, and this concrete also protects the outside of the pipe from corrosion. This question of corrosion gave the engineers much concern, and investigations were carried out which showed the great value of Portland cement as a protective covering, and the pipes were accordingly lined inside with 2 inches of Portland cement mortar. Owing to distortion of the pipe under varying loads, it is, of course, impossible to obtain perfect contact between the steel and the mortar lining, but experiments showed that even with the mortar separated from the steel to the extent of one-twenty-fifth of an inch percolating water lost to a great extent its corrosive power. The remainder of the aqueduct, *i.e.*, that portion which terminates in the Silver Lake Reservoir, consists of cast iron pipes of ordinary type, except for the syphon under the Narrows, where a special flexible joint was designed. Here, again, much investigation was entered into before the exact type of joint was finally determined, and I understand that the result has been satisfactory.

The aqueduct terminates in the existing Silver Lake Reservoir holding 400,000,000 gallons, and two more service reservoirs were constructed, the first called the Kensico Reservoir situated about 75 miles from the commencement of the aqueduct, and the second, the Hill View Reservoir, at Mile 92, just before the city is entered. The Kensico Reservoir is on the Bronx River, which is already utilised for the supply of New York, and consists in an enlargement of the existing reservoir so as to hold 29,000,000,000 gallons, or 58 days' supply of the flow of the aqueduct, an unusually large provision. Although only a service reservoir, it holds more than twice as much as the Vyrnwy Reservoir for the supply of Liverpool. The water is to be impounded by a masonry dam 170 feet in height above the river bed, the foundations being carried to a maximum depth of 130 feet below the river bed, and its total length is 1,830 feet. Its maximum thickness, where founded on the solid rock is 228 feet, so that it is a much larger construction than the Olive Bridge Dam, and it is generally of similar construction to that dam, except that the downstream face is to be finished with granite. The reservoir will be of regular shape dotted with islands, and much thought has been given to its æsthetic treatment. As it was built inside and upstream of the existing Kensico embankment, the headwork of the Bronx Aqueduct, the existing reservoir had to be drained and two large temporary lakes formed, having a total capacity of 5,000,000,000 gallons, in order to keep up the Bronx supply. These lakes were formed by means of earth embankments with timber core walls from 40 to 50 feet high, and each about 470 feet in length. There is a good deal of swampy ground which will be within the reservoir area, and these areas are to be covered with clean soil and sand. It is expected that this work, which was let in September, 1910, will take ten years to complete, and therefore the Catskill Aqueduct is so arranged that the water can either be discharged into the reservoir or can flow straight to the city by means of a by-pass.

The Hill View Service Reservoir will hold 900,000,000 gallons, and is for the purpose of equalising the fluctuations in demand for water. The Catskill water can either enter this reservoir or can be carried through it by means of a conduit 12 feet in diameter constructed in a wall, which divides the reservoir into two partitions. The reservoir is entirely artificial, that is, it is dug out and the excavated material deposited in the surrounding embankments, the depth of excavation, which is in glacial boulder till reaching a maximum of 45 feet, and the total excavation amounting to about 2,900,000 cubic yards. The banks have no core walls, and consist of an inner embankment of carefully selected material rolled in four inch layers brought up to above water level and an outer embankment resting against and covering this special embankment. The absence of core walls is unusual, but no doubt the nature of the material, the way in which it was spread and rolled, and the care taken in stripping and in making a good connection between the bank and the original ground was considered to be a guarantee of its watertightness, seeing that the depth of water was only 45 feet. The complete cost of this gigantic scheme cannot yet be determined, but there is no doubt that it will be carried out at a very reasonable figure, considering its magnitude. Although the aqueduct carries 500,000,000 gallons a day, whereas the Crotan Aqueduct carried only 300,000,000 gallons a day, is has only cost about 10 per cent. more per foot run than the Crotan Aqueduct.

The number of men employed on the contractors' forces reached a maximum of between 15,000 and 16,000 in the year 1910. This does not seem a large figure, considering the size of the work, and is to be accounted for by the fact that machinery was used wherever possible to supersede hand labour. The wages varied from about 8s. 6d. paid to general labourers to 16s. per day for skilled labour, and the actual contract prices at which the work was let do not differ materially from those obtaining in this country just before the war.

A very large engineering staff was employed, working under the direction of Mr. Waldo Smith, the Chief Engineer, reaching a total of over 1,300 men in the year 1910. Mr. Waldo Smith had also a board of consulting engineers to assist him with their advice.

A NEW TOWN PLAN FOR THE CITY OF DUBLIN.

AT the last meeting of the Town Planning Institute an illustrated lecture was given by Professor Patrick Abercrombie, M.A., A.R.I.B.A., on the design submitted by himself and his partners, Sydney A. & Arthur J. Kelly, in the Dublin Town Planning Competition.

The plan which was awarded the prize offered by the Marquis of Aberdeen to the Municipality of Dublin, is, Professor Abercrombie explained, based upon three factors: sociological, geographical, and historical. Other considerations entered naturally into the course of its elaboration, but these three outstand as the determining factors which shaped its physical conformation.

The sociological basis took the form of an imperative requirement, which, indeed, was the origin of the competition—the need for some scheme upon which to provide new houses for rather more than 60,000 persons who were living in sub-human conditions. The Departmental Committee appointed by the Local Government Board of Ireland to inquire into the housing conditions of Dublin issued its monumental Report and Volume of Evidence (most illuminatory of text-books on Ireland) in February 1914; this provided the documentary evidence upon

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which to work: it was reinforced graphically by an accompanying plan showing the location of undesirable property, divided under the following heads:—

1. Derelict sites.
2. Insanitary areas.
3. Dangerous buildings.

A more detailed plan, indicating also the location of all tenement property, prepared by Mr. Kaye Parry for the Civics Exhibition of the same year, was accessible and formed the first instalment of a civic survey of Dublin.

The other two factors did not, unfortunately, rest upon evidence so documented, but their necessity was none the less equally apparent. Both factors related to transportation.

The geological factor was the conformation of the valley of the Liffey, by which it was evident that a tunnel could be made without excessive cost along the valley to connect Amiens Street Station with Kingsbridge Station: a cross connection could also be devised connecting Westland Row Station with Amiens Station, or with the East and West Tunnel; this would permit the demolition of the unsightly bridge—an Irish Charing Cross behemoth—and join Kingstown with Kerry and the North. These connections could be made without the necessity of piercing through the limestone that encloses the valley at a further set-back from the river banks. A cross-connection, north and south, of secondary importance, joining Broadstones terminus with Harcourt Street Station, would necessitate a small amount of limestone tunnelling. The geological factor, then, suggested the feasibility of complete railway unification and a central Union Station.

The historical factor referred to the road system—particularly on the north bank, where the traffic aims of the country roads making for the one bridge across the Liffey to the walled mediæval town on the south were sufficiently apparent. A restoration of this natural web provides an objective at present thwarted for the radial roads with a crossing, not indeed by the original bridge, as the block of the Four Courts has intervened, but immediately to the east, duplicating Richmond Bridge.

Here, then, on the site of the old Ormond Market is the new traffic centre of the city, the road and railway centre coinciding, as indeed they should wherever this is possible. The south bank, as in Paris, is less simple to treat; the mediæval city, and particularly the Castle, form unmanageable obstructions; but round Christchurch a subsidiary road centre has been created and linked up with the radiation of the southern country roads.

By this arrangement Sackville Street is freed of the incubus of the tram nexus, and it can be treated as its noble proportions merit as the great city avenue.

These two factors are, of course, closely connected with the first, as transport improvement is inseparable from housing reform; but the railway connection is more nearly related to the equipment of Dublin as a capital city. No radial remodelling of the road plan could be justified unless it were undertaken in conjunction with that of railway, dock and canal. Briefly, it was the geological formation of the Liffey Valley that made a suggestion for railway unification feasible, and it was the historical direction of Dublin's streets that indicated the form which the new web might take.

The feature which bulks next largely upon the town plan is governed like the railways by a natural phenomenon; the silting up of a large part of Dublin Bay has suggested the method upon which dock extension should proceed—two areas for reclamation the northern industrial and the southern residential, and the utilisation of the North Bull bank already naturally reclaimed for a great sea-fronting park. The dock extension seawards is the recognised modern method, and appears capable of easy accomplishment in Dublin; and this would be complemented by a more efficient use of the existing symmetrical canal system. At the mouth of the harbour a colossal power station is proposed, so that the coal which reaches Dublin by sea may be converted into driving force with the smallest loss of energy.

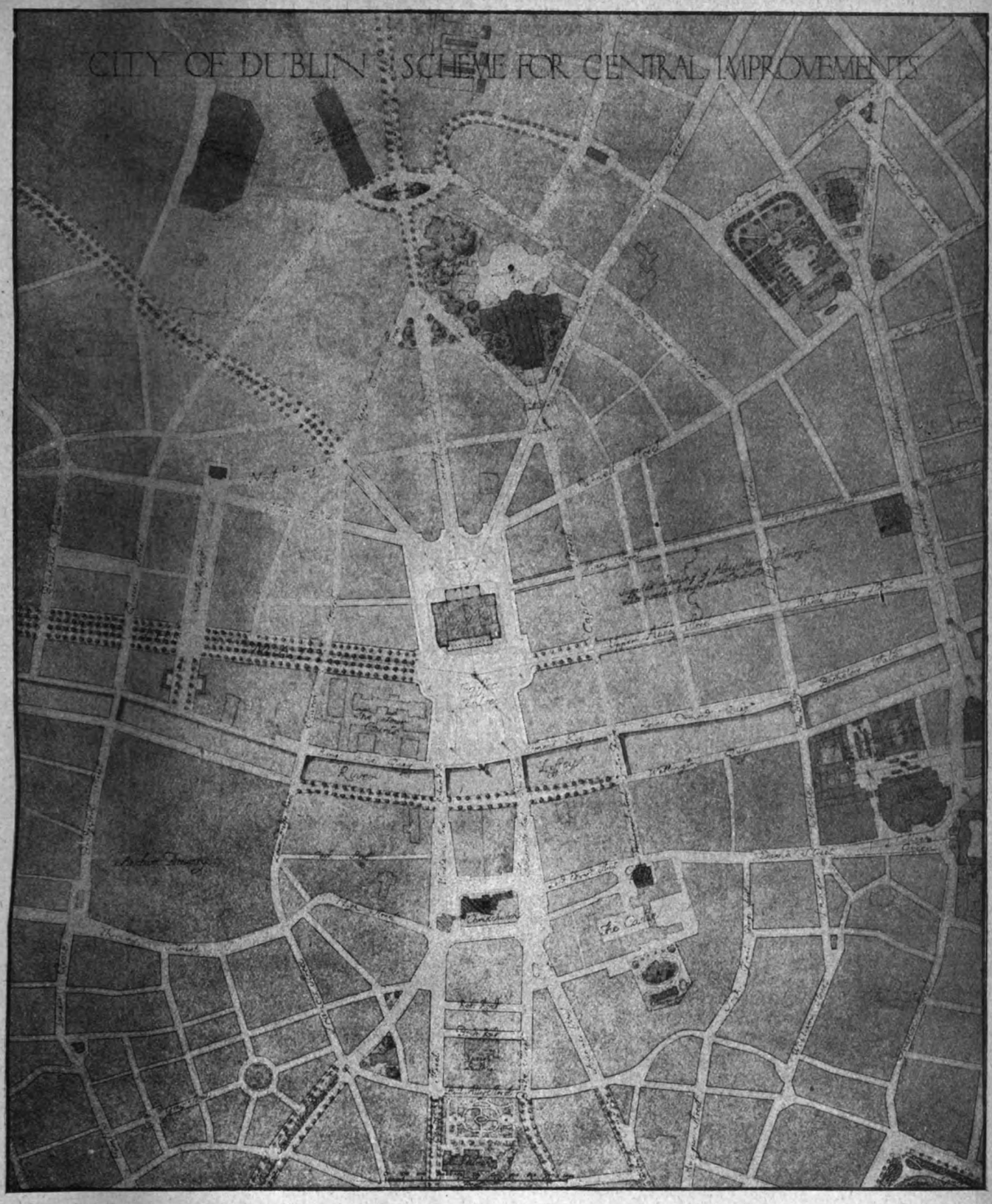
It cannot be denied that for these various reasons Dublin presents a most attractive ground for the town-planner to work upon: a more detailed study of the existing town shows further points which make it apt for improvement and a stimulating study for the improver. Its possession of a series of public buildings of great nobility whose setting is frequently marred by the juxtaposition of deepest squalor or brutal utilitarianism; its noble Sackville Street worried out of its dignity by a Morris dance of tram-cars, now about to be rebuilt with a worthier architectural treatment than that recently destroyed; its fine series of existing radial roads, which are frequently marred by sudden narrowings or unrealised objective; its individual wide streets such as Dominic and Gloucester Street, tenement ridden and isolated from full city life; its north and south circular roads an eighteenth-century heritage of enlightened planning such as no other British town possesses, but their function in the road plan forgotten and vitiated; Phœnix Park, whose wedge shape the most meticulous landscape architect could not improve, its apex only one mile from the centre of the city, but its only approach along the narrow traffic-burthened quays; and, lastly, the Liffey, a stream capable of the most beautiful treatment, the ideal width for a town waterway, but marred by the most superficial if unpleasant of imperfections; these and many other fine features are waiting to be worked into a consistent and coherent plan.

Furthermore, some of the very misfortunes of Dublin are now seen to have a compensating advantage in giving it opportunities denied to more fortunate towns. The smallness of its expansive growth during the industrial age* due to causes outside the scope of this paper, and the unnatural intensive filling of buildings in the existing town designed for other occupants, has produced a compact, densely filled town which bears close likeness to many Continental towns, penned up within fortifications. It is well known that these cities, after enduring a closer confinement within walls than their English neighbours, have, once these were down, found a reasonable expansion more easily obtainable: there are not the vast accretions of by-law suburbs of the industrial age to plough through in order to open up undeveloped tracts for new growth. So Dublin, having suffered through nineteenth-century stagnation finds itself more readily able to equip itself for the future than the average English town.

Dublin has one feature which is certainly absent from any walled town—the derelict sites about the central area amounting to the amazing number of 603 on the north and 756 on the south. These unoccupied sites account for the fact that the average density of Dublin per acre, if we eliminate the strictly non-residential areas, is only 95.8; it is, however, known that single tenements, not blocks, but ordinary town houses, contain ninety persons, and one was mentioned at the inquiry as housing 107. So recently as 1908 a Bill was framed to deal with these unproductive areas; it was defeated by a political junta as variegated in complexion as it was indiscriminating in action. But to the town planner these derelict sites present an unrivalled opportunity for central improvements; no junta could prevent a town plan which cut through them right and left and promised to turn sterile soil to commercial uses. And the community would see that it obtained a large share of the resulting increment. Nowhere could central improvements be suggested with so manifest a prospect of appreciating values as in Dublin. In only one necessary connection, that which cuts across Dame Street, is a valuable building either commercial or industrial, demolished; and it is interesting to note that this connection was put forward by Mr. George O'Connor, C.E.,

* During the fifty years of the industrial period from 1851-1901, Dublin only increased by 2,441, and up to 1891 it had decreased by 15,368.

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PREMIATED DESIGN by PROFESSOR PATRICK ABERCROMBIE and MESSRS. SYDNEY A. & ARTHUR J. KELLY.

at the inquiry, and adopted by many of the competitors. The temporary derelict areas occasioned by the rebellion do not offer many opportunities for large town-planning improvements, as unfortunately the artillery were not accompanied by a town planner; a widening of Abbey Street and the improvement of the junction of Henry with Sackville Street are perhaps the most that should be attempted. It would be foolish to be carried away by these chances into suggesting harebrained schemes for open spaces, cathedral sites, where commercial premises should stand.

Another chance, this time not a misfortunate one, gives Dublin a great opportunity, if a bold and far-seeing scheme be embarked upon. To the west of the Broadstones terminus are located a veritable congeries of institutions: the Grange Gorman Prison, the Richmond Asylum, the North Dublin Union, and several hospitals. Their grounds form a wedge that nearly touches the very centre of the city; by stages, these institutions, as they require rebuilding, should be removed to the country, and even now with a slight demolition a great avenue, 120 feet wide, could easily be constructed to lead from

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the Ormond Markets and the new traffic centre to Cabra, where one of the large new housing areas is placed. A corresponding avenue from the other principal area on the south at Crumlin is possible across the Tenter Fields (about to be built on without reference to any such idea!) and ploughing through that bottomless pit, the Wood Quay Ward. The other main avenue proposed, the Phœnix Park Mall, has not so helpful a route nor so strong a justification in necessity; but its attractiveness and recreative value need not be emphasised.

But to return to the first factor: at first glance its magnitude daunts the reformer—14,000 houses required before the war; not to make up a general shortage of supply for a normal growth of population, but to extract some 63,000 people out-of dwelling conditions that should not be tolerated for a moment longer. But, after all, the chief difficulty is one of finance, and this should be clearly a national undertaking, to be performed at one single operation. The Dublin tenement has sickened the Dublinites of tenemental housing. In the future the reasoned use of tenements will be restricted to the very limited number that are required by certain classes of labour in immediate proximity to their work; and a very simple reform of organisation would probably reduce this limited need. As to the problem occasioned by the dislocation of so many families, this need not be feared; if the first and second class tenement houses were to be remodelled satisfactorily so as to avoid overcrowding about six thousand families would have to be turned out: of the accommodation occupied by the remaining 8,000 a considerable amount of the poorest property would be absorbed by the central improvements, and a further amount would be naturally required for commercial expansion along those streets such as the Dominic Street and Gloucester Street, which, not in themselves swept away or altered by the town plan, are by its means brought into active functioning. There need thus be very little empty house property occasioned by the exodus of these 14,000 families. In other respects these large housing schemes would have not only a direct but an indirect benefit upon Dublin. It was their necessity that gave to the competition a feeling of reality and practicalness, which is not present where the planner has to prepare for "the probable growth of the town during the next fifty years."

Unfortunately, the authorities have not yet realised the wisdom of creating these new suburbs outside the urban area of Dublin, which may be said to be bounded on the south by the Grand Canal and on the north by a line just outside the N. Circular Road and Clonciffe Road. Within this area none of these houses should be built; whatever space there is will be required for normal city growth and the shifting of population owing to commercial expansion at the centre. A permissive density per acre for this urban area should be fixed upon, and this should not be permitted to be exceeded; and the removal of this large number of people outside the urban area is an excellent opportunity for reducing this. But to buy sites near the centre and on them to erect new houses, however sanitary, is merely to perpetuate existing town overcrowding, to say nothing of putting two-storey cottages on sites which in a few years will be required for five-storey commercial premises.

Something is wanted which will draw attention to these facts with more directness than a town plan whose primary function is to portray the city as anticipated for the future. A civic survey is necessary to give a graphic picture of existing conditions of housing, transport, industry, commerce, and recreation and to show their underlying tendencies.

The contrast between the method adopted in this Dublin competition and the Dusseldorf need not be pointed out: in the latter the competition had a well-thought-out civic survey to work upon. But it cannot be too frequently emphasised that Dublin is singularly different from most towns owing to the decayed nature of its central area, which does not require documentary justification for every separate line of improvement. (Compare the opposite condition at Newark, N.Y.) The civic survey is none the less necessary, but it can be introduced at a later stage.

A competition would give a very wrong impression if it suggested that a town plan was a finite design to be carried out like a modern building; it, in fact, should more resemble in its execution a mediæval cathedral, which was an organic design continually undergoing modification as it progressed. In order to show how such a place might be built up the proposals here put forward have been plotted in three periods, according to their degree of urgency. In this way it will be seen how modifications can be introduced as the work proceeds without destroying the general conception. It also illustrates how the main objects of the plan can be put into operation at an early stage, so that the commercial improvement may ensue; while their final completion will come about naturally as prosperity rises high. If a method of periodic development, or carrying out by definite stages, is clearly grasped there is no need to be daunted by the magnitude of the proposals; enormous results can be obtained if only everything that is done, however small, is part of a thought-out organic scheme.

Finally, it may be said that even though complete financial assistance is given for the specific housing schemes and their ancillary traffic connections in order to carry out the recommendations of the departmental report, the town plan here outlined can only come into operation as the result of prosperity; to carry out the most modest proposals in a stagnant city would entail disproportionate expenditure—in one that was "booming" the whole scheme would work itself out naturally by stages.

Of course, improvements must be in hand, or prosperity will not come; a waterlogged bog with no prospect of drainage will not attract an enterprising farmer. But who can doubt that a great future is in store for Dublin as a port, a manufacturing town, and a capital city, if only her citizens have faith in the future? "Nature has given you a winning hand," said Sir William Lever to Dublin in 1911. "All that Nature asks is that you play the game."

THE LATE MR. HERBERT BATSFORD.

MR. HERBERT BATSFORD, the managing director of the well-known firm of architectural publishers and booksellers, died somewhat suddenly at his residence at Golder's Green on the 14th inst., after an illness of nine months.

Herbert Batsford, the third and youngest son of the late Bradley Thomas Batsford, by whom the business was founded in 1842, was born in 1861 and educated at the Philological School, Marylebone. He intended to devote himself to the practice of the law as a barrister, and for this he had early shown remarkable aptitude. However, the death of an elder brother in 1882 caused him to enter the family business, with which he has been continuously associated ever since, and which bears the stamp of his energy and enterprise. Mr. Batsford had an extraordinary knowledge of art books, prints, and engravings, especially those of the seventeenth and eighteenth centuries. This knowledge was founded upon keen artistic perception and a great admiration for the work of the masters of these periods. Mr. Batsford made several original discoveries, notably the existence of an earlier state of Piranesi's extraordinarily imaginative "Carceri." In addition, Mr. Batsford did much to develop the publishing activity of the firm, especially during the past ten years. Many of the more important books were not only supervised and produced, but owed their inception to his insight and initiative. Mr. Batsford always aimed at a high ideal of attainment, and his enthusiasm was frequently a source of encouragement and even of inspiration to his authors and to all who worked with him. He was greatly interested in all products of beautiful craftsmanship and spent much time in

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searching out, recording, and photographing beautiful examples, both in London and various parts of the country. Amongst the books he published may be mentioned the two folio volumes on the "Domestic Architecture of the Tudor Period," which he entrusted to the late Thomas Garner, and which were afterwards completed by Mr. Arthur Stratton, F.S.A. Other books were Richardson's "Monumental Classic Architecture," Vallance's "Old Colleges of Oxford," Bond's "Gothic Architecture in England," Ward's "French Châteaux and Gardens," Tanner's "Interior Woodwork," Swarbrick's "Robert Adam and his Brothers," Statham's "A Short Critical History of Architecture," Stratton and Wade's "Bruges," and Adams' "Modern Cottage Architecture." Mr. Batsford was active in issuing art publications even after the outbreak of the war, and in the summer of last year he prepared, in conjunction with Mr. Walter H. Godfrey, F.S.A., an interesting monograph of "English Mural Monuments," while as recently as December last he personally supervised the production of a record on "Port Sunlight" by Mr. T. Raffles Davison. As an instance of his broad literary sympathies may be mentioned the series of "Fellowship Books" in eighteen volumes, which he issued about three years ago.

Associated with Mr. Batsford in the direction of the business for the last twenty years have been his nephew, Mr. Harry Batsford, and Mr. W. Hannaford Smith, who as the two remaining directors will continue its work.

WAR LESSONS FROM ANCIENT ROME.

PROFESSOR F. HAVERFIELD, Camden Professor of Ancient History at Oxford, had prepared a paper on "The Roman Wall," from Newcastle to Carlisle, to be read before the Chester and North Wales Archæological Society, but was unable to make the journey, and in his absence the paper was read by Miss M. V. Taylor, who assisted the Professor in the preparation of his work.

The Professor's paper, says the "Manchester Guardian," stated that the ruins of the Roman wall, the northern frontier defence of Roman Britain, still stretch from Wallsend-on-Tyne, three miles east of Newcastle, to Bowness-on-Solway, twelve miles west of Carlisle. One of the best tests of an Empire's vigour was certainly the amount of strength which it could exert, without overstrain, on its really remote frontiers. When it failed to maintain these, to defeat its distant enemies and control its distant officers, it was probably nearer to its decline and fall than when it had ceased to conquer more and more territory. Britain offered many strong proofs that the Roman Empire could guard its furthest borders to a very late date. Indeed, the task of the Roman Empire was not at all unlike our own to-day. Just as we in our present struggle stood, as we believed, for freedom and for civilisation, so stood the Roman Empire. In some ways, perhaps, Rome's task was greater than ours. In one military respect, too, the Empire closely resembled the world of to-day. In it the defensive was far stronger than the offensive; towns were rarely taken by storm, but often by hunger; the prevailing arm was heavy infantry; cavalry was of little account. No one would be surprised to hear that this age of wall defence, of trench warfare, as we should call it to-day, produced no great general who could be ranked with Hannibal, Marlborough, or Napoleon as a genius in tactics or strategy.

In the long defensive struggle of Rome (against barbarism) a frontier such as that of North Britain was highly important. Then, as in the seventeenth and eighteenth centuries, in the same North British region, the special danger came from the furious charges of undaunted Caledonians—charges which might be compared with the huge rushes *en masse* that had lately piled French and Belgian battlefields with dead. When the history of China became better known to Western men, when we realised better the extraordinary achievements of the Middle Kingdom, we should see that it, too, toiled at the same task as ourselves and Rome, the task of shutting out barbarians, and it, too, used the same method, that of frontier walls, of fortified frontier lines.

Professor Haverfield ventured to assign the fall of the Roman Empire to a reason which was in most minds to-day. He did not attempt to predict how far attrition might be likely to overthrow our present enemies, but he had little doubt that attrition was a real factor in great wars, and he thought it destroyed the Empire of Rome. Long plagues and long frontier struggles against the inexhaustible man-power of the barbarian invaders gradually wore down the imperial fighting strength. If we should learn any lesson from the Roman Empire it was that which seemed to be in many enemy mouths to-day, the lesson of Durchhalten. That to-day a Roman culture was spread over Western Europe, that we were the allies of France, of Italy, and (in Rumania) of a Hohenzollern prince, was in part due to the cold tenacity of the Roman frontier defence. Guns and munitions in inexhaustible numbers were the only help against human hurricanes, and that Rome had not these was hardly her own fault, but that of the slow progress of all mankind.

The Roman Wall was 73½ miles long, and survived in innumerable fragments, which, in respect of its history, presented some exceedingly difficult problems. It was a complex structure, and, like the lines now stretched out across Western Europe, it was not one single rampart, but a succession of ramparts, one behind the other. In front of the wall, with scarcely an intermission, ran a deep, broad ditch, and behind the wall ran a second work of loose earth. Excavations he had conducted near Gilsland revealed yet another line. These lines of trenches, just like ours to-day, had their appropriate fortresses, blockhouses, and turrets at suitable intervals. The whole length of the wall was connected together by a substantial road some 17-18 feet across, stoutly paved with cobbles, and edged with kerbs, and there were milestones. More excavations, especially in the forts, were needed to answer many questions, and perhaps even that would not banish all obscurities and doubts. He had little hope that the various obstacles, local and personal jealousies, and the like, ever would be sufficiently overcome to admit of real success, and this was not the moment even to dream of a work which would cost some thousand pounds, and need the attention of many skilled supervisors, hard to collect even in peace, and the toil of many able-bodied labourers. Had the neighbouring University of Durham been inclined to attack the task much might have been achieved in the past.

THE LIMITATIONS OF STAINED GLASS.*

THE study of old glass—that is to say, more particularly of the thirteenth, fourteenth, and fifteenth centuries—whilst being most helpful and, indeed, necessary to the student, is such an interesting and fascinating pursuit that many have been obsessed by it, and have turned "old glass" into such a fetish that they insist that the craftsmen of to-day should imitate and even copy the works they admire so much, not only in general treatment, but also in drawing, colour, and method of painting.

The attempt to conform to this limitation has been very largely the cause of the sham mediævalism that is still to be found in much modern glass, and was almost invariable in early Victorian, and accounted in part for its utter lack of character.

There are certain limitations the student must bear in mind for the production of really excellent work, and these may roughly be placed under three heads. The first is common to every form of art and craft, and is good taste; the second is that glass being a form of decoration, must abide by the restrictions that word entails; and the third is the limitation imposed by a frank use and recognition of its materials—lead and glass.

* Abstract of a Paper read before the Institute of British Decorators by Mr. R. C. Bayne.

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There is one important fact that many writers on early glass omit to mention—*i.e.*, that none of the ancient glass is now in the condition in which it left the hands of its producer; they voice their great appreciation of it not as it was, but as it is, and seem to forget that nature has played no mean part in its production. She has painted it by decay, with a very lavish hand, until what at first must have been thin and garish to our modern taste has become a beautiful and deeply toned harmony. If the critics incited the student to imitate the tone of old glass as we now see it, there would be little to quarrel with them about; but whilst they extol it as it is they seek to limit us to producing something much more like what it originally was; and, unfortunately for us, there is no example left in anything like perfect or new condition, or one may venture to think we should not hear quite so much on the subject.

Unfortunately, in these days there is no living style of architecture. Glass being a form of decoration, and hence of necessity merely a handmaid of architecture, is in much the same quandary. It necessarily follows that so far as ornamental forms are concerned it must follow the general characteristics of the building in which it is to be placed, or it may tend to spoil instead of decorate. But in respect of the figures, costumes, and general treatment, let the art live, and living progress. Present-day knowledge is greater in every way than that possessed by the early craftsman: it would surely be wrong to stultify it by not putting it to practical application.

It would be as reasonable to have the Battle of the Somme depicted in our illustrated papers after the manner of Durer, with our troops in plate armour firing arquebuses and mediæval cannon, as to depict our figures, no matter in what age they lived, in thirteenth, fourteenth, or fifteenth century costume merely to suit the style of the building.

Yet numerous experts insist on this kind of thing being done. They are designing, say, in fifteenth century style, and therefore whether their subject be St. David (fifth century), St. Augustine (sixth century), or William of Wykeham (fourteenth century), they represent them in precisely the same costume, with bishops' vestments and tall mitres. The ancient craftsman knew no better; he depicted his figures in the costumes he saw used in everyday life. Modern research has given us greater knowledge, and we know that whilst the mitre is correct for William of Wykeham, it was unknown in the days of St. Augustine, as it did not come into use until the twelfth century.

Or, again, take the Roman soldiers guarding our Lord's tomb; are we to represent them in fifteenth century plate armour? I contend it would be quite as justifiable to imitate the practice of the ancients, go to our own everyday costume, and clothe them in khaki.

Surely the use of correct costume can but give an added interest; and the sense of style can still be kept, if desired, by general treatment.

Research has endowed us with many other advantages besides the knowledge of correct costumes, and it is our duty to make full use of them. We have the diamond and the even more modern steel wheel with which to cut our glass, in place of having to break it by heat roughly to size and then groze it to correct shape with pliers, as had to be done in times past. In place of the very limited palette of the ancient craftsman, which consisted of but two or, at the most, three tints of each primary colour, we have to-day glass of every conceivable tint and hue, primary, secondary, and tertiary, each tint graduated from dark to light, and often with two colours of different shades blended or streaked on a sheet; and yet some would confine us to the use of only those colours found in old glass. There is a popular misconception, constantly repeated in the press, that stained glass is a lost art, and the remark is intended more particularly to refer to colour. It may be said without fear of contradiction that there is no colour found in old glass that cannot be obtained to-day. A paragraph appeared in most of the papers a few weeks back to the effect that at last the secret of making ruby glass had been discovered. Certain fragments from the shattered windows of Rheims Cathedral having been examined and analysed, it had been found that ruby was made by flashing the colour on a deeply toned white. Now certainly for the past thirty years ruby has been made in this manner, in addition to being flashed on pure white, blue, yellow, and deep green. Old works demonstrate the toning and darkening produced by corrosion amounting in some places to actual blackening. In the case of colour this corrosion has the effect of reducing their brilliancy; thus primary colours may in time attain to secondary or even tertiary effects, and in this way old glass has acquired a greater range of colour than it possessed when first executed; and, some parts having resisted the destroying hand of time better than others, a jewelled and brilliant effect is thus obtained by force of contrast. In these strenuous days we are not content to wait for a few centuries for our work to tone or we might make our windows with the glasses used by our predecessors. Neither can we well employ so great an amount of pigment as would be necessary to produce the effect of great age on the brightest glasses; we therefore make use in some portions of sharp colours, in others those of more neutral tint, and then tone the whole by a freer employment of pigment in painting in our details than was the custom in earlier ages; and without this free use of pigment it will be found impossible to obtain the mellow unity so much admired.

We are told that this use of pigment is wrong, and that we should leave our glass in its purity. Some have attempted to put this theory into practice; and the very latest thing, in fact an example of "Futurism" in glass, is to be seen in a window recently placed at the west end of St. Mary's, Slough. This work was much extolled in the "Observer" as the finest thing done in the art since the seventeenth century. It certainly conforms to all the limitations ever imposed except that of colour, inasmuch as it is pure glass and lead without pigment, if not without design of any kind. The newspaper's art critic, however, stated that the theme was Adam and Eve in the Garden of Eden, and particularly called attention to the beauty of Eve's hair and to the theme of the Serpent running through the whole composition.

To some eyes, doubtless owing to lack of soul, it appeared to be merely a meaningless jumble of full, bright, and, indeed, garish colour. As a proof of its excellence it was specially remarked that it completely killed the east window in the same church executed a few years earlier and a good example of a certain style of modern glass. Kill it it certainly does, and so would a bright patchwork quilt kill any old painting however magnificent alongside of which it might be hung. Time may work wonders on glass such as this, though even that is doubtful, as, apart from dust and dirt, there is not likely to be anything approaching the decay caused by atmospheric and other forces on ancient glass, owing to the much greater hardness of the modern product.

In the sixteenth century glass departed rather rapidly from the customs of the earlier periods; and, though much of the execution and drawing was admirable, the designers were not so careful in keeping their work in harmony with the architecture; in fact, they often ignored altogether the shape of the lights they were filling. The mullions were ignored, a figure might extend over three of the lights, the body in one, an arm in another, or a leg protruding into a third. Such treatment violates the idea of decoration, inasmuch as it takes no note of the architect's design and is uncomfortable to look upon; it produces a feeling that the figures are too big for the window. During that century backgrounds became much more elaborate and a larger quantity of pigment was used, the flesh being in some cases very carefully and deeply painted, and in this respect they more nearly conform to modern practice.

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Those who deprecate elaborate painting tell us that windows are primarily intended to admit light. Such a statement cannot be denied. But does it necessarily follow that the argument applies to those made of stained glass? If the greatest amount of light possible is required, plain glass would better suit the requirement. Undoubtedly there is a temptation in making a window to make it too dark, as the darker it is the richer and more beautiful is the colour effect that can be obtained; but most of us will admit that a dim religious light can be overdone. Then again, coloured windows are intended to teach and elevate the thoughts of the beholder; and it follows that the nearer the costume is to truth, and the closer the subjects keep to the text, the more interesting and instructive they become.

The ancient treatment of, say, "The Crucifixion," on a merely diapered ground, or with a screen at the back of the figure, is excellent as a decorative effect; but can we not render the subject much more interesting and more illustrative of the story by suggesting in the background the "green hill without a city wall"? And what more decorative objects can one have than sky and trees, both of which lend themselves to the cutting up of the surface, which is so essential in glass-work, not only for the production of jewelled effects by the use of broken colour, but also for strong constructional work in the shape of lead? Big masses of plain colour are not pleasing in this art, and should be avoided.

Sky to some may suggest blue, but it can be made of any colour except green, red, purple, yellow, and white or combinations of them being all equally effective if properly treated; trees also may be practically of any colour that is required in the scheme.

Single-figure compositions also can be made much less monotonous by the introduction of a scene from the life of the saint in the background as, for example, a figure of St. Martin might have as background the incident of his dividing his cloak with the beggar. Treatment such as this adds a sense of mystery, and necessitates a more careful examination to take in details not grasped at the first glance.

Purely natural effects, aerial perspective is fortunately impossible in glass; leads will assert themselves, and cannot be melted into the dim distance.

There is, however, one form of glass-work practised in the sixteenth and seventeenth centuries the secret of which is to some extent lost—namely, the process of enamelling, which consists of burning on to white or coloured glass of vitreous enamels. This process has been used in modern times, but the enamels are of nothing like so permanent a nature as those found in early examples, neither are they so transparent. Speaking broadly, it is perhaps a blessing that the method of making permanent enamels has never been rediscovered. What a temptation it would be to many artists to forsake the true tenets of stained glass and endeavour to produce purely pictorial effects on big pieces of glass by the use of enamels. There are some good-sized examples of enamelled work to be seen in the chapel of Peterhouse College, Cambridge; the windows were exhibited in the '62 Exhibition, and have been preserved from decay by covering them both inside and out with plate glass. Beautifully drawn and painted, with cast shadows and reflected lights, they are extremely pleasing to the average non-technical or, shall we say, uneducated beholder; but to the initiated their lack of decorative feeling, total absence of sparkle, and careful avoidance of the limitations of the material render them unworthy to be spoken of as stained glass, their whole appearance being that of a transparent oil painting.

There is but one permanent enamel in general employment to-day, a blue; this is useful particularly in small heraldic works. There is no doubt other enamels would be of service, providing they were put to legitimate uses and that the temptation to misuse them was carefully avoided.

Leads may be considered from two points of view: as a strengthening subject not alone does it add to the structural durability of our windows, but gives them greater decorative quality and force.

The public often say, "What a pity it is you have to employ all these leads in the window; how much better they would look without them!" Now the truth is the exact opposite of that. The feeling of strength and character added by the leads is almost inconceivable. They help largely to give that decorative feeling that is so essential; cross-leads also give a sense of flatness of field which is most desirable in this art; and it will be found that the more they are used in reason the better is the effect.

As to the method of production of windows, we hear a great deal said nowadays about commercialism. All art must have its commercial side. Artists expect or at least hope to live by their work; but the term is generally used to express contempt for "firms"—that is to say, the association of several persons together for the better, and possibly cheaper, production of their work.

It is contended that the artist should not only design, draw, and superintend the work, but that he should personally cut the glass, paint, fire, and glaze it. Why not also expect him to make the glass, lead, and pigments to be used? Let us consider for a moment what such a requirement really means. Probably all know how long it takes, given talent, to design and draw respectably: shall we put it at seven years? To cut and glaze so that the windows shall be sound and watertight will probably take the craftsman (allowing for superior intelligence) another three years. And to learn the technicalities of tracing and painting two more would be little enough time.

What was the practice of our forerunners? Did not the great artists themselves have their "schools"—namely, numerous pupils working with them and for them? And there is evidence from the registers of many cathedrals and churches that stained glass was always done by a combination of men, draughtsmen, painters, and glaziers.

There are several advantages in work being done by schools, or their modern equivalent "firms." Amongst them are equality of production and the carrying on of tradition, and the larger stock of materials that can be kept from which to choose what is required for any particular purpose. Again, we seldom find all the talents united in one person, and a combination may ofttimes produce a much finer result than can be hoped for from the work of an individual.

A designer may have novel ideas without being a fine draughtsman. A fine sense of draughtsmanship is often found without a good eye for colour, the great joy and beauty of glass. After all, what really counts is the excellence of the finished product, and the school or firm system of production ensures, to some extent, a patron getting what he requires, as the peculiar characteristics by which the work of each is recognised are kept fairly constant, great changes only coming with long lapses of time.

There is one other advantage of combination that one might mention, and that is what is known colloquially as "the fresh eye." Those who do any drawing have doubtless known what it is to feel satisfied with a particular bit of work, after perhaps having taken greater pains than usual; and yet a friend has pointed out some faults, very unreasonably it may seem at the time. Probably you have placed the drawing on one side and forgotten it, and after six months or so have come across it and felt horrified that you could have made such flagrant errors—those your friend had previously pointed out to you—and the quality of the drawing goes down very much in your estimation. It simply means that you have acquired "the fresh eye" so far as that particular drawing is concerned. So in a combination there are plenty of "fresh eyes," and errors stand a very excellent chance of being observed and corrected.

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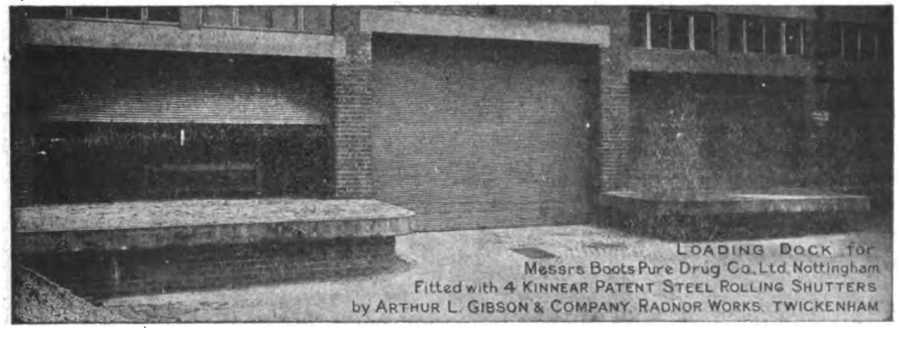
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Whilst it is not necessary for the designer of glass to cut and glaze his own work, he certainly should have a thorough technical knowledge of how both processes are carried out, and what can and cannot be conveniently executed. This knowledge can be and is acquired by constantly seeing the work in progress.

To sum up, let the student carefully study glass of all ages and styles, look out for the good and beautiful in each, at the same time note carefully what is defective or unpleasing. Having learnt these lessons, let him endeavour, avoiding false shibboleths and eccentricities, to move forward slowly but surely, guided but not enslaved by the traditions of the past.

Then will come real progress in this beautiful craft, which revels in rich sonorous colour, the thing which, as a nation, we most lack and are, indeed, afraid of, and which adds more than anything else, animation, interest, and poetry to life.

THE EFFECT OF THE WAR ON ART.

WE include the fine arts in the arts of peace. But history does not help us to decide whether war is, or is not, the enemy of painting, sculpture and architecture, says Count Plunkett, Hon. A.R.I.B.A., in the "Irish Monthly." Certainly, after wars great events in the arts have occurred. But even the sanguinary outbreaks of the Middle Ages, making every man's house his castle, seem to have stimulated the craftsmanship of the domestic arts in an amazing manner. Fine composition and truth in miniatures, and dramatic little ivories, and enamels lovely in their schemes of colour, helped to make life tolerable in the enclosures and fastnesses of wild times.

Later too, it should be remembered, the workmen who built the finest examples of North Italian Romanesque, like the men who built the temples of Judæa, went armed to their task. The Florentine guilds that founded the shrines which became treasuries of art had their piping times of peace; but much of their most delicate property sprang up, as it were, in the turmoil of struggles with neighbouring towns. It is difficult to remember that Leonardo, Raffaele, and Michel Angelo bent their great imaginations to the service of the god of war.

Yet, proverbially, it is ill preaching among swords. For like reasons—*e.g.*, the rousing of blinding passions, the throwing aside of the thin veil of civilisation, the sacrifice of subtlety and, to a large extent, of spirituality—the imaginative arts seem hardly to have the right to exist in time of war. That they are disregarded at such times is shown by the haste with which galleries are closed and art lectureships held in suspense, and nothing but man's acquisitive greed and anxiety to seize a chance make it possible for the collector to continue collecting.

But the gathering of objects of art is a thing altogether outside of the art instinct; indeed it is a commercial and certainly a utilitarian tendency, rather than a direct appeal to the soul or the mind. A critic recently said that the assumption that poetry suffered in war time was to be answered with an overwhelming contradiction, and he pointed to the English war poetry to clinch his argument. Well, I am afraid that this gentleman only proves, if he proves anything, that critical judgment suffers among the other intellectual efforts of the time. At this moment it must honestly be said that the arts are altogether in abeyance. We cannot expect that architecture should thrive when the architect is called on to be a military engineer, and when the community, reduced by the drafting of the able-bodied to the seat of war, is in the main suffering from pecuniary depression. Sculpture, except for monumental purposes, has hardly a foothold in England, and in France and Italy has, by the excesses of its votaries, produced a common antagonism to the celebration of great events in this form. Painting, usually treated as a superfluity in England, and as an adjunct to official institutions in France, has slipped out of the public mind of both countries. In Italy it has been for many a day an unprofitable art. It would be difficult to speculate, therefore, on the future of this art among the Allies. After the war, building, treated rather rigorously from the point of view of use and expenditure, will have a certain call from sheer necessity, and out of the new conditions a wholesome simplicity of style may be evolved. Statuary and relief-carving and monumental structures, one almost shudders to think, will probably raise their dismal cortège through most cities, and with as little of the artistic quality as Germany showed after the war of 1870. As for painting, I fear it will continue to be treated as a superfluity—in so far as the work of living men is concerned. The masterpieces of the past and works valued for historic and museum reasons will pass freely from hand to hand under the stress of circumstances when the new era begins, but it is to be feared that the commissions given to painters and the popular selection will relate, as in the Victorian era, almost altogether to feeble sentiment and little stories with a moral. In France, however, there is a possibility of a vigorous and dramatic school of war painters taking up the line dropped by the French painters of twenty or thirty years ago—although the romanticism and the passion of that time seem to have passed out of the French character. The Frenchman of to-day is as dogged and brilliant a fighter as ever; but glory means nothing to him, and he has rather a sad smile when you talk to him of victory. Of the other nations concerned in the war, Germany will probably resume first recognition that art is part of civilisation, and while we cannot expect the art to show much spiritual power that is taken up in this way, at least the practice of painting has a chance of living under those conditions. To Austria, crippled as she may be after the war, the arts will appeal with some of the old force, for she has, with her composite character, within recent times shown somewhat of the old idealism of Italy combined with the practical qualities of the Teuton.

It may be asked, is any good to come to the arts out of the changes produced in the world by the war, changes in character, in outlook, and social conditions? I think that one of the first good results of the war upon art will be the breaking up of most of the artificialities and conventions which made art a cult. In London and Paris, perhaps also in Berlin, men trained their minds to contradict their senses, within the past thirty or forty years. So, it was possible for a man who could not draw to persuade men of education that accuracy of drawing was a mark of decadence, and that naturalistic colour appealed entirely to an emotion, or submitted itself completely to a scheme of decoration, so that none but the initiate could understand it.

Our very "Realists," as they called themselves, were satisfied to accept as real something either in drawing, or modelling, or colouring, that was no more intelligible to the ordinary eye than if the public were blind. But apart from such freakish work, painters of ability had got into such moods that their individuality disappeared, so that they tried to see and represent by artifice the images that to other ages came naturally; or they lent themselves solely to the choice of their patrons. The tendency to take a man who by his experiments set himself apart from his fellows, and to treat him as an Indian fakir or a Buddhist saint, was bound to injure the public taste and the judgment of the artists. For example, take Watts, who began as a careful draftsman, and whose early work though affected is sometimes fine in modelling and harmonious in colour. He threw away these gifts of careful work, and, trying to give us the gorgeous glow of Venetian art, lost himself in exaggerated modelling after Michel Angelo, and in symbolic designs too remote to have any appeal. Even when he tried portraiture in his latter days, his attempt to render character was so portentous that only the affected people could think highly of such unnatural and stodgy work. As for his preposterous mockeries of sculpture, it was a puzzle to know how even the Royal Academy could endure them.

We must escape then, if possible, from the autocracy of the professional critic. Bad drawing, bad colouring,

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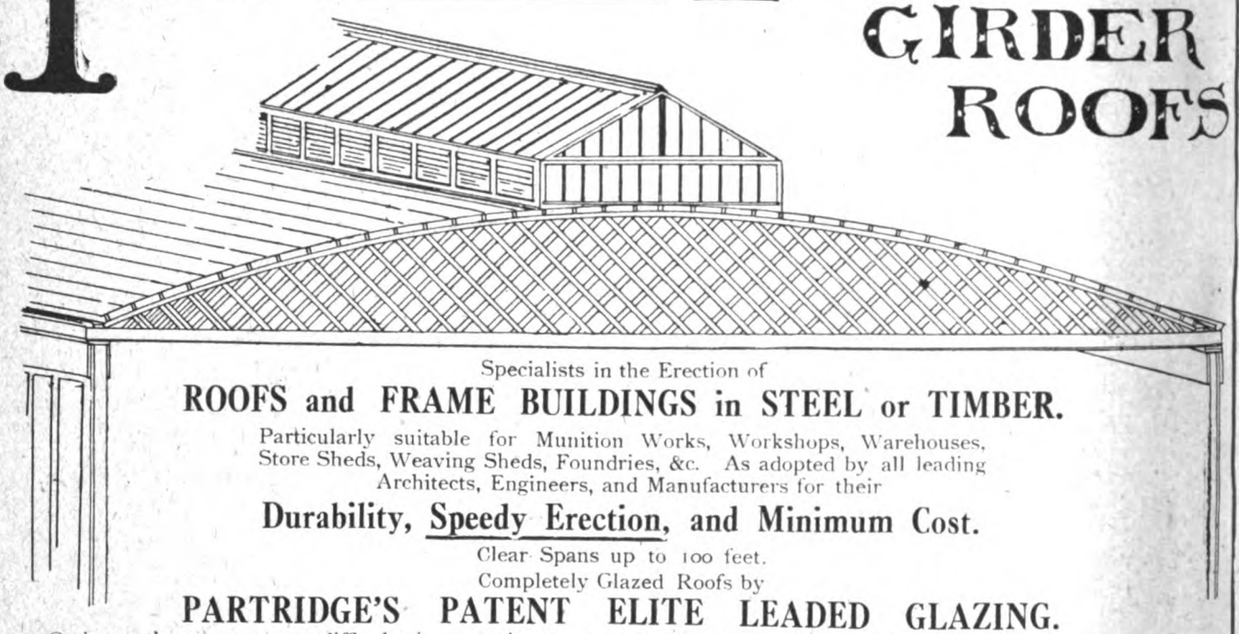
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the approaching of imaginative subjects from a material standpoint, and the turning out of unworkmanlike work, these things should cease in the schools and exhibitions and galleries of the future. If France is to recover herself in art she must abandon the tendency to substitute "tours de force" for good workmanship—she already has a sound position through her Gallic thoroughness. England must understand that you cannot get art beyond the mechanical stage if you do not (1) put the student through a strict discipline in the study of anatomy, and (2) do not force the student to re-create his subject, with change of attitude and expression, from his mental picture.

The "distraite" manner in which art is overlooked at this moment is painfully shown in the childish commendations scattered broadcast regarding those truculent failures, the war cartoons. Such graceless perversions of art deserve to be placed in most cases beside the shocking monstrosities into which Mestrovic has metamorphosed the heroes of Serbia.

Perhaps, after all, some people may conclude that, like Boyle O'Reilly, I "think of Ireland, looking on Cathay."

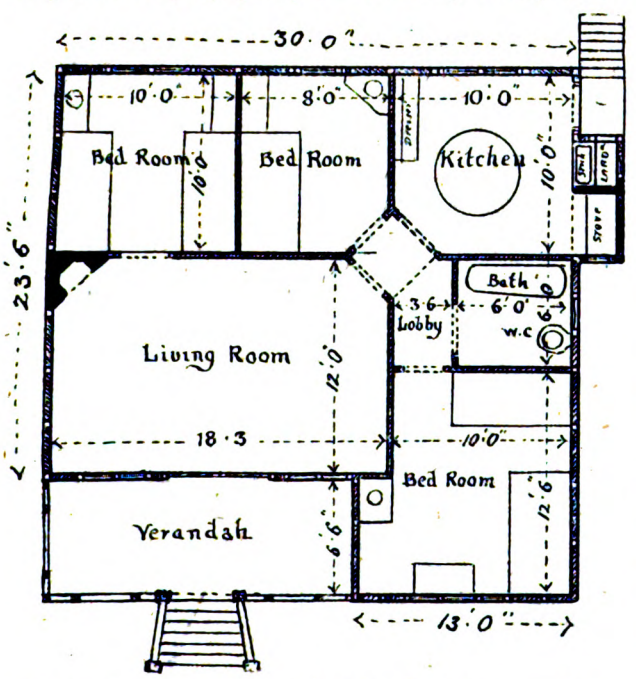
Correspondence

[The Editor will not be responsible for the opinions expressed by Correspondents.]

Army and Navy Homes.

SIR,—Many people will be anxious to promote the future happiness and prosperity of our fighting men when they return home from the wars.

Many landowners, if properly approached, will be willing to give or sell cheaply portions of their land to our gallant sailors and soldiers, whilst people of means may be glad to help by giving or advancing money at low



SKETCH PLAN OF BUNGALOW.—By Mr. F. NESBITT KEMP.

interest to enable these men to erect their own houses, so that they with their families may start their world afresh under favourable conditions.

But to enable them to build cheaply it will certainly be necessary to get the L.C.C. and District Councils to amend their by-laws so that modern materials, such as concrete blocks, asbestos slabs, &c., may be used, and where there is ample surrounding space even wood buildings.

As a specialist of long standing in domestic architecture and land development I shall be pleased to give advice free, and I should like to see a responsible committee formed to carry out this suggestion.—Yours, &c.,

January 16, 1917. FREDK. NESBITT KEMP.

Organisers' Clearing-House.

SIR,—We have reason to believe that there is in the country a supply of talent and energy available for useful work, which at present is either unable to find an outlet for its capacity or is misapplied.

The need for perfecting and assisting existing organisations is generally admitted, and there is evidence on every hand that the volume of new work to be undertaken is destined to increase.

In the stress of war the obvious need for a Clearing-house and Intelligence Department for the organiser has been overlooked. In the conviction that such a machine is useful and necessary both for the workers and for those who employ them, we have opened an Organisers' Clearing-house with the following objects:—

1. To act as consulting organiser.
2. To provide—and, if necessary, to superintend—organisers to assist useful work which is already being done.
3. To provide—and, if necessary, to superintend—organisers for new work.
4. To help "square pegs" into "square holes."
5. To collate information about the scope and activities of existing organisations so that those who desire to give their assistance may be guided in the right direction.

Organisers and secretaries of associations, leagues, and similar societies are asked to send any information about their work and requirements, which they may desire to be at hand for reference, to the Secretary of the Organisers' Clearing-house.

Those who want employment in the higher grades of organisation work are invited to apply in writing to the Secretary, stating their previous experience, qualifications, salary, and nature of work desired.

Suggestions from those to whom the plan of the Clearing-house appeals will be welcome and should be addressed to the Secretary.—Yours, &c.,

CHICHESTER,
PERCY,
F. P. WHITBREAD,
A. E. OWEN,
Committee.
PERCY CREED, *Chief Organiser.*

Parliament Mansions, Victoria Street,
London, S.W.: January 18, 1917.

The "Entrance" to St. Eloi, Dunkirk.

SIR,—Less than a fortnight before the latest grotesque blunder in a leading illustrated daily (contributed to by the best authors, &c., according to its boast), we were informed that the picture of the snow-clad ruins of Arras Town Hall was that of the Cathedral ruins—that misstatement having been made twice before in that paper—and the error pointed out to the editor.

On January 19 we were given a view of the fine sweep of stilted arches of the apse of the church of St. Eloi at Dunkirk—with the sandbag-covered high altar—and were bidden to believe the view was that of the *entrance* to the church! The "entrance," in reality, is part of a clumsy classical façade to the noble Gothic choir, a street having been driven through the nave and aisles. The tower is on the other side of the street.—Yours, &c.,

N.-I.

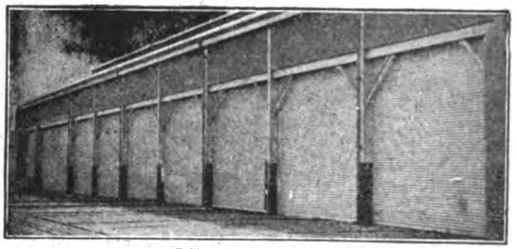
Cremation as a Preventive of Premature Burial.

SIR,—Referring to the quotation by "E. L." from "Premature Burial and How it may be Prevented" in your excellent journal of 19th inst., may I be allowed to point out that the authors, on page 325 of this valuable volume, say:—"Whilst agreeing with this distinguished authority as to the advantages of cremation from the sanitary and æsthetic points of view, which he (Sir H. Thompson) dwells upon in the treatise referred to, and admitting that a certain amount of protection against live

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burial is obtainable by means of the dual medical inspection, we cannot agree that this protection is absolute. Cases of trance are on record where some half-a-dozen doctors, after careful examinations, have pronounced a cataleptic patient to be dead, and the patient, in defiance of their united opinion, has recovered consciousness and been restored to health." The only way to insure that people are not buried alive is to wait until putrefactive decomposition has unmistakably set in before disposal of a body. And the Association for the Prevention of Premature Burial advocates the establishment of waiting mortuaries where the apparently dead can be watched and kept until resuscitation takes place, or death is scientifically proved to have occurred.—Yours, &c.,

BURIAL REFORMER.

January 22, 1917.

Income Tax Rates.

SIR,—The income-tax demand notes are now being issued, and it behoves your readers to look very carefully into the figure at which they are charged. The rates are as follows:—

Earned income: Up to £500, 2*s.* 3*d.*; up to £1,000, 2*s.* 6*d.*; up to £1,500, 3*s.*; up to £2,000, 3*s.* 8*d.*; up to £2,500, 4*s.* 4*d.*; over £2,500, 5*s.*

Unearned income: Up to £500, 3*s.*; up to £1,000, 3*s.* 6*d.*; up to £1,500, 4*s.*; up to £2,000, 4*s.* 6*d.*; over £2,000, 5*s.*

In all cases it is the total income that is the criterion in fixing the rate of tax.

Relief is also allowed on all incomes up to £700, for payment of life insurance premiums, for children under sixteen, and for reduction to correct rate of tax where the unearned income has suffered deduction of tax at 5*s.* in the £.—Yours, &c.,

For the Income Tax Reclamation Association, Ltd.,

WILFRED T. FRY, Director.

Mortgages in War-Time.

SIR,—Will "Legal Adviser" kindly say whether the Courts (Emergency Powers) Act 1914 will relieve a mortgagor from pressure by the mortgagee until after the war, *re* a sum of £3,000 on freehold houses of £70 a year rental (each), where the value of property is not questioned and interest at 4½ per cent. has been punctually paid? Extreme difficulty would be experienced in finding £3,000, but interest at 6 per cent. would be paid to relieve pressure. Your advice would be much valued by yours, &c.,

PROPERTY OWNER.

Answer.

MORTGAGE (Property Owner).—The Increase of Rent and Mortgage Interest (War Restrictions) Act, 1915, enacts that "it shall not be lawful for any mortgagee under a mortgage to which this Act applies, during the continuance of this Act, and as long as the interest is paid and is not more than 21 days in arrear, and the covenants by the mortgagor are performed, and so long as the mortgagor keeps the property in repair, to call in his mortgage or to take any steps for foreclosure or sale." This seems to protect you, but if the mortgagee gives you notice to repay, you should consult a solicitor. The same Act prevents the rate of interest being increased except in certain cases, but it does not apply to cases where the principal money is repayable by periodical instalments extending over 10 years.

BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

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CHESHIRE.

Hampton.—Milk factory for Messrs. Reece & Sons (Liverpool).

DORSET.

Dorchester.—Garage: additions for the Dorchester Steam Laundry Co., Ltd.

DURHAM.

Sunderland.—Council school, Thomas Street: additions, &c.

HEREFORDSHIRE.

Bromyard.—Garage, &c., New Road, for Mr. Mitchell.

KENT.

Ashford.—House, Jemmett Road. Mr. H. Knock, builder, New Street.

LANCASHIRE.

Burnley.—Carnegie Library: Borough Surveyor.

Swinton.—St. Peter's Church: chapel.

LEICESTERSHIRE.

Hinckley.—Factory, Trinity Lane: additions for Messrs. Tebbutt & Garrett.

LINCOLNSHIRE.

Alford.—Garage, West Street, for Mr. G. W. Lawson.

RUTLANDSHIRE.

Oakham.—Factory, Westgate Street: conversion into cinematograph house.

STAFFORDSHIRE.

Walsall.—House, Gorway Lane, for Mr. H. Cope.
Shop, Lower Rushall Street: extension for Messrs. Eyland & Sons, Ltd.
Workshops, Bank Street, for Messrs. A. T. Price & Co.
Workshops, Tantarra Street, for Messrs. Satchwell & Gittings.

Wolverhampton.—Nos. 1 and 1½ Darlington Street: additions for Messrs. Johnson Brothers.
The "Star and Garter" Hotel: additions for Mr. J. Horton.
Stables, &c., Sidney Street, for Mr. S. Bridgen.

SURREY.

Richmond-on-Thames.—Proposed warehouse, Petersham Road. Mr. E. J. Partridge, architect, Bank Chambers.

SUSSEX.

Hove.—Factory. Messrs. Clayton & Black, architects. 10 Prince Albert Street.
Ice store, Holland Road, for the Lightfoot Refrigeration Company.

WORCESTERSHIRE.

Dudley.—Garage, Hall Street, for Messrs. A. Harper, Sons & Bean, Ltd.
The "Green Man" public-house, Castle Street: additions for Messrs. Ind, Coope & Co., Ltd.
Workshop, Cradley Road, Netherton, for Messrs. J. Barnsley & Sons.

YORKSHIRE.

Gildersome.—"Old Hall" Mill: reconstruction for J. Wilson, Ltd.

Goole.—"Cape of Good Hope" Hotel (£2,000), for Mr. A. W. Drury.

Hull.—Twelve houses, Southcoates Avenue. Mr. H. Vokes, builder, 102 Anlaby Road.
Store, Culcoates Lane, for Hull Brewery Co., Ltd.

Pontefract.—Infirmary: proposed extension.

Wakefield.—"Bishop Blaize" Inn, Thornes: alterations for L. and Y.R. Company.
Offices, Leeds Road: additions and alterations for the Low Laithes Colliery Co.

WALES.

Llandudno.—The "Clarence" Hotel, Gloddaeth Street: alterations and improvements for Mr. E. W. Johnson.

Swansea.—St. Matthew's Church: parish hall.

SCOTLAND.

Annan.—Cinema house, Lady Street.

Ayr.—Workshops, South Harbour Street, for Messrs. Henry Simon, Ltd. (Manchester).

Coatbridge.—Institute, Bank Street (£5,000), for United M.A.M.C.

Dunfermline.—School, Rosyth (£30,000).

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THE ARCHITECT

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FORTHCOMING EVENTS.

Monday, February 5.

Royal Society of Arts : Cantor Lecture II. on "Town Planning and Civic Architecture," by Professor A. Beresford Pite, F.R.I.B.A., at 4.30 P.M.

Royal Institute of British Architects : Ordinary General Meeting : Announcement of the Council's nomination for the Royal Gold Medal, at 4.30 P.M.

Tuesday, February 6.

Institution of Civil Engineers : Paper to be submitted for discussion, "The Main Drainage of London," by Mr. G. W. Humphreys, M.Inst.C.E., at 5.30 P.M.

Wednesday, February 7.

Royal Institute of British Architects : Conference on "Education of the Architect," to be opened by Mr. Robert Atkinson, F.R.I.B.A., at 3.30 P.M.

Royal Archæological Institute : Paper entitled "The Evidence of the Anglo-Saxon Charters on the Road System of England," by Mr. G. B. Grundy, M.A., D.Litt., in the Apartments of the Society of Antiquaries, at 4.30 P.M.

Carpenters' Hall : Lecture entitled "Wonder of Work in War Time," by Mr. Joseph Pennell, at 7.15 P.M.

Friday, February 9.

Town Planning Institute : Paper entitled "Monumental Memorials and Town Planning," by Professor S. D. Adshead, F.R.I.B.A.

ROYAL ACADEMY WINTER EXHIBITION.

By opening its doors to an exhibition of Graphic Art, the Royal Academy still further extends its recognition to the fact that art is not confined to the painting in oils of easel pictures, which it has last autumn admitted by allowing its galleries to be used by the Arts and Crafts Exhibition Society for a display of decorative art. The term Graphic Art is not perhaps quite happy or distinctive of the class of work of which the present exhibition consists, but it would be rather difficult to find a better in the sense of being both definitive and appellant to the general public. It will, no doubt, be more generally attractive as an exhibition of Graphic Art than if it had been styled merely a Black-and-White exhibition, but its importance lies in the fact that every important phase of modern British black-and-white art is represented, with the added advantage of comparison with masterpieces of such work by the great artists of the past. In one sense the term Graphic Art may be admitted, that is that the works exhibited are those in whose nature drawing rather than painting is the dominant note.

Certainly the Royal Academicians are to be congratulated on the wider view that they are now taking of the domain of art, and in this particular instance they have given evidence of wise breadth of outlook by associating on a Joint Committee with their own representative members, Sir Edward Poynter, Sir Thomas Brock, Mr. George Clausen, and Sir Frank Short, the names of Mr. Joseph Pennell, president of the Senefelder Club, M. Theodore Roussel, president of the Society of Graver-Printers in Colour, and Mr. Francis Dodd, as representative of the Society of Twelve. The result justifies the action, for the exhibition is far more diverse and interesting than if the Academy had attempted to manage the affair wholly by its own efforts.

Indeed, the exhibition is almost too comprehensive, for there is a superabundance of works not of the first class or purely academic studies. On the other hand, there are notable omissions. For example, Mr. Brangwyn, Mr. W. Orpen, and Mr. Augustus John are not represented, and without them an exhibition of modern Graphic Art can scarcely be said to be complete. Despite all reasonable exception, we have, nevertheless, a remarkable collection of graphic or black-and-white art, and one that needs many visits for the adequate enjoyment of the bonnes bouches, let alone of the highly meritorious examples. An ordinary Royal Academy exhibition of oil paintings is too much to be taken at one mouthful, but in a black-and-white show, owing no doubt to the absence of the relief afforded to the vision by variation of colour schemes, one seems to tire more readily than in an ordinary picture gallery. It is worth while, therefore, to make repeated visits, both for full enjoyment of the good things provided and for the greater benefit of the Red Cross and St. John Ambulance Society, who profit by the receipts.

In the Retrospective Section is a selection of engravings and etchings, intended to illustrate the history of these arts from the fifteenth to the nineteenth century. Although somewhat deficient in adequate examples of French work, we may here enjoy the productions of some of the greatest Italian masters, Marcantonio, Mantegna, Mocetto, Guido Reni, Schiavone (Meldolla), Cavaletto, as well as of such northern masters as Cornelis Vischer, Aldegrever, Schongauer, Albrecht Dürer, Hollar, Rembrandt. The mezzotinters also are well represented from Ludwig von Siegen onwards, and we can hardly help regretting the present comparative unpopularity of this particular branch of the engraver's craft. A fine collection of impressions from Turner's Liber Studiorum leads us on to a series of examples of departed masters of etching, Sir F. Seymour Haden, Alphonse Legros, Samuel Palmer, J. McNeill Whistler, R. W. Macbeth.

The small south room is devoted to the remarkable group of illustrators who flourished in the Victorian era, and of whom a notable series of examples is afforded by the fine collection of Mr. Harold Hartley, ranging from the pre-Raphaelites to Aubrey Beardsley and Phil May, by whom we are brought into the modern era of photo-engraving.

In the first and second galleries we may study graphic art in many interesting examples of varied media, the fine pencil point, the soft broad pencil, pen and ink, monochrome brush work, line work touched with pastel and other combinations, white grounds, tinted grounds, and other gadgets. It is interesting to note the work of such modern exponents of draughtsmanship as Mr. John Wheatley, Mr. R. Schwabe, Mr. Clausen, Mr. Selwyn Image, Mr. Rothenstein, Second-Lieutenant Muirhead Bone, Mr. F. L. Griggs, Mr. C. S. Cheston, the late Lieutenant Percy Gethin, Miss Elsie Henderson.

Mr. Alfred Parsons, R.A., delights us with some delicately fine pen-and-ink work amongst the earliest numbers of Gallery No. I. Lieutenant Muirhead Bone gives us a contrast in technique between the bold impressionism of his war scenes, "Street in Ypres" and "Rouen Cathedral by Moonlight," as compared with his more deliberate and older style as shown in "Rouen" and "Country near Amiens." It is pleasant to see how Mr. F. L. Griggs works in pure pencil drawing in a group of six, hung together in Gallery No. II., as compared with his etchings and pen-and-ink work. We were naturally attracted by Mr. Reginald Blomfield's pencil drawing of landscape entitled "The Pool, Pershore," and by Sir Ernest George's drawings of "The

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Citadel, Laon, France," and "Metz." The first two galleries, indeed, furnish quite enough entertainment for one visit. There are some dull and even vapid things to be found there, it is true, but on the whole we are conscious of power, freshness, and invigorating ability in draughtsmanship.

In the large gallery we have a bewildering profusion of etchings, most of them well chosen and admirable examples of modern work. We find also a collection of modern mezzotints, of which the plate by Mr. H. Macbeth Raeburn, "Lady Ann Lambton and Family, after J. Hoppner, R.A.," approaches most nearly in quality to the eighteenth-century masters, though there is some fine work by Sir Frank Short, R.A., P.R.E., and to our liking, Mr. E. Marsden Wilson.

Gallery No. IV. is devoted to "Lithographs by deceased and living artists," in which Mr. Pennell with eight of his "Munitions" series is well supported by other members of the Senefelder Club, Miss Edith Hope, Mr. and Mrs. John Copley, Mr. F. Ernest Jackson, Mr. Daniel Veresmith, and others. Amongst the deceased lithographers Whistler and Legros are prominent. Altogether the artists on stone are well represented, but there is a sort of feeling obtruding that our modern lithographers think too much of the stone.

Colour-prints are the feature of Gallery No. V., and amongst them some excellent work by M. Theodore Roussel, Lieutenant E. A. Verpilleux, and Mr. Morley Fletcher. The walls of the Lecture Room are devoted to etchings, amongst which are examples of the veteran Axel Haig's work, "Lisieux Cathedral," "Toledo," "Belfry of Bruges," "Salamanca," and "Lourdes."

Besides drawings, etchings, engravings, lithographs, and the whole gamut of black-and-white, the exhibition includes as specimens of graphic art—or as furniture—a considerable number of works by sculptors rather than of sculpture, chiefly small scale studies for memorials.

NOTES AND COMMENTS.

The successful conference of the National Federation of Property Owners and Ratepayers held last Friday showed that the Federation is developing increasing strength in numbers and influence, as well as a determination to make a fight against the foolish and unwise political animosity against property owners which has been a powerful factor in bringing about the disastrous shortage of housing accommodation with which this country is now afflicted.

In the presidential address by Mr. Edwin Evans, which we give elsewhere, the whole matter is well thrashed out, and there can be little doubt that, if the recommendations put forward by Mr. Evans are adopted by the Government, private enterprise will, after the war, speedily restore the balance between demand and supply which has been so grievously upset.

To the owner of small class property, let at weekly rentals, there are two overbearing responsibilities which the tenant does not appreciate. These are repairs and rates. Accordingly there is much wisdom in the suggestion that tenants should be required to carry out the internal decorative repairs, of course with reduced rents. They would thus have a personal interest in the upkeep and would be induced to maintain rather than to damage the property.

Whilst the holding of Dublin's Civic Week, with its exhibition of competitive designs for the revision of the city's plan, has aroused much interest in the matter, it is obvious that the time is inopportune for any serious prosecution of a town-planning scheme. As Mr. Duke, the Chief Secretary, said on the occasion of his visit to the exhibition, such a scheme must be left over for future and happier times. But the question of housing in Dublin is almost too acute for postponement, even in war-time. Unfortunately there seems to be a serious difference of opinion as to the proposed policies of internal improvement of tenements and external suburban expansion.

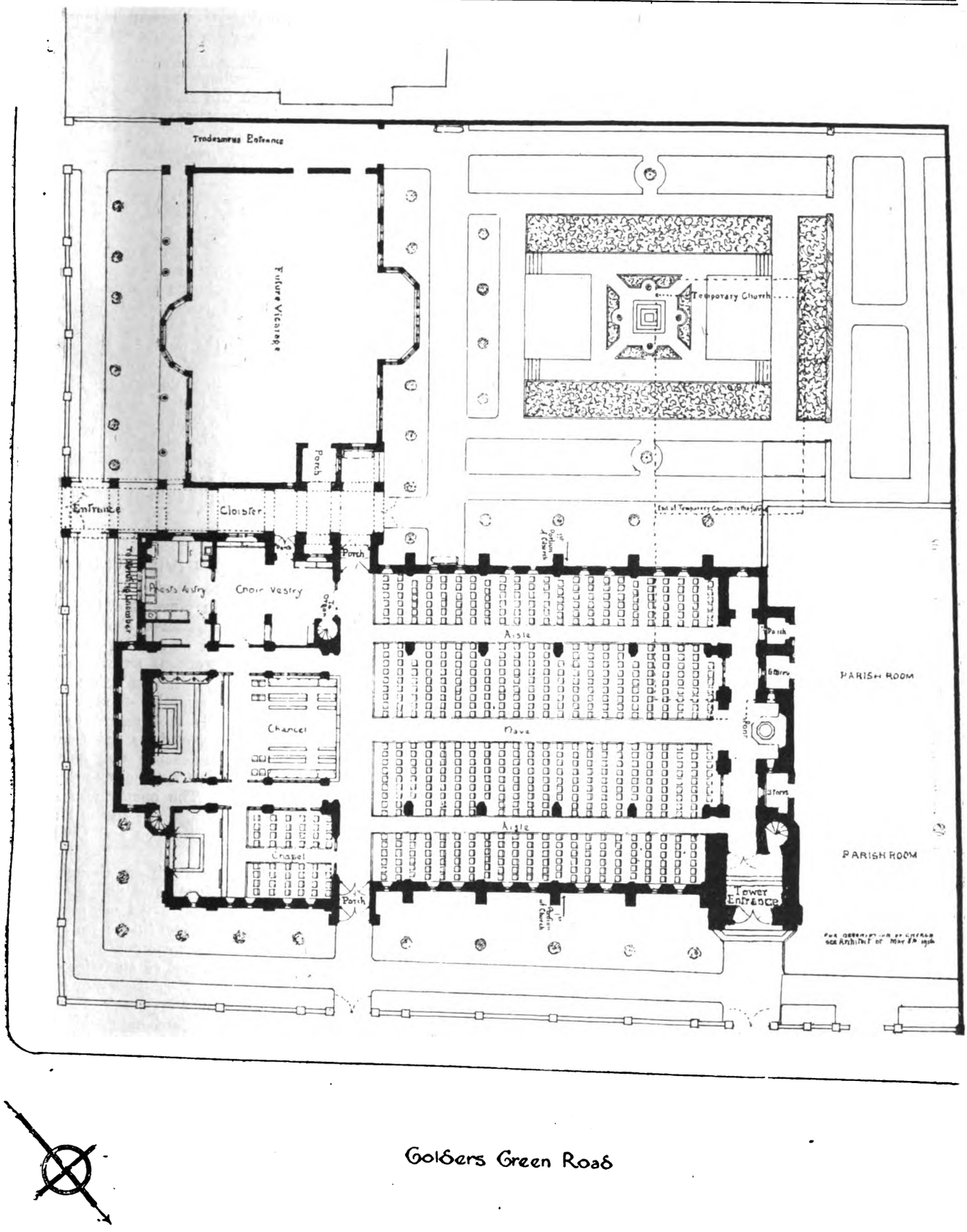
The discussion, we might almost say dispute, as to the ultimate location of Sir Hugh Lane's group of modern pictures now in the possession of the National Gallery, lends point to the recently opened exhibition in the Trafalgar Square building, whilst the inclusion at the same time of some of the art treasures of Montagu House and Grosvenor House affords the public an opportunity of enjoying many notable works by old masters which are not ordinarily readily accessible.

We are glad to know that the Municipal Council of the City of Dublin has decided to refer the matter of the ancient Newgate remains to the Paving Committee with instructions to take the necessary steps to preserve the structure. At the meeting of the Council the Town Clerk read a letter from Mr. C. J. McCarthy, City Architect, in the course of which he said:—"As showing the antiquity of these remains I may mention that some time ago I received a letter from Mr. McNeill, in which he says: 'The evidence adduced established, I think, that this gate was "new" only in the earliest days of the Anglo-Norman occupation of Dublin, and that it had been built before the reign of King John. It is, therefore, one of the earliest, if not the earliest, civic monument of the ancient city. Your records contain a great many references to it. It was in the possession of one of the first Mayors, and from the fifteenth century, at least, until 1763, it was the city prison. It was against this gate that Silken Thomas planted his artillery in 1534, and the defence of Dick Stanton, had he not the misfortune to be on the side of the Government, would have been as famous as that of the bridge of Rome by Horatius. Though Gilbert is mistaken in supposing that Primate Oliver Plunket was confined here (it was the New Gate of London that was his prison; in Dublin he was in the Castle) there were some notable inmates of New Gate, Dublin, and the Sham Squire was among them.'"

It may be open to legitimate difference of opinion whether specialised education should commence as early as the age of 12½ years, as contemplated in the recommendation to the Birmingham Education Committee from their Elementary Education Sub-Committee, that a junior day technical school for general engineering should be held in the building at Aston, occupied in the evening by the Technical School and the School of Art, but it is regrettable that the discussion of the matter, which is obviously of high importance, should have resolved itself into a squabble as to which committee should administer the School, rather than a deliberate consideration of the advisability of adopting the general principle. We think the chairman of the Education Committee, Sir George Kenrick, took the right view when he said that he was not greatly interested as to whether the management of the school was in the hands of one committee or another. Either committee he considered competent to conduct such a school. What he wished to call attention to was, that this proposal was a step in a certain direction—almost the first being taken—to give a continuous course of instruction in a certain trade. Instruction in industry and trade hitherto had been perfectly haphazard. Science would effect as many changes in industry as they had seen during the last fifty years, and the only way to meet them was by having up-to-date day technical schools with teachers specially qualified to give instruction in science as applied to industry. Sir George commended the proposal of the sub-committee, and urged members not to stand on the order of doing what was suggested, but do it at once.

One of the things that would have made us more prepared for war and is desirable for our national equipment in the struggle for commercial supremacy on the

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ST. MICHAEL'S CHURCH, GOLDERS GREEN.—JOHN T. LEE, Architect.

return of peace is the establishment of central clearing houses in London and other large centres of commerce, in place of the haphazard distribution of goods stations and shunting-yards, which in London alone cover an area of between four and five square miles of land. What with canals and arterial roads as well as centralised clearing houses for goods, there is a tremendous leeway to be made up before transport in the British Isles has been brought into a satisfactory state of efficiency.

In the report presented to the fifty-second annual meeting of the Yorkshire Archæological Society, it was stated that, although for the second year, in consequence of the war, the Society had held no meetings, its work had not been at a standstill. The Council still kept a watchful eye on the ancient monuments of the county. They regretted that the laying down of a railway siding in connection with the extension of a certain munition works would result in the destruction of a Roman camp,

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a complete scientific examination of which might have yielded good results. An opportunity was, however, so be afforded during the process of obliteration, of making a hasty archæological examination of the site. In regard to the Roman fort at Slack, the report mentioned the probability of a resumption of excavations on the conclusion of peace. The number of "finds" communicated to the Council during the year included another customary milestone at Scapegoat Hill, near Golcar, a bronze spearhead found near Northallerton, more architectural remains of the chapel in Thornasthorpe manor house on the opposite side of the river, a Romano-British sculptured stone at Kirby Underdale, a pre-Conquest stone at Kirkheaton, and what might prove to be unrecorded pre-Conquest stones at Brandsby and Yeddington.

ILLUSTRATIONS.

ST. MICHAEL'S CHURCH, GOLDERS GREEN, SCREENS, &c.

The church consists of a nave, with north and south aisles, a baptistery with tower and south-west porch, and a chancel and ambulatory with vestries on the south and a chapel on the north. The ambulatory, which is carried up on each side of the chancel and over a part of the choir vestry to form an organ chamber, with space for augmented choir, is approached by a turret from each side of the chancel. The total length of the church is 138 ft. by 62 ft. wide. Dignity of effect in the interior is provided by carrying up the enclosing arches of the clerestory from the nave floor to the roof, which is 35 ft. 6 in. to the springing and 42 ft. to the apex. Arches are also provided across the entire length of the nave. Height is provided in the chancel by carrying up the ambulatory as a double arcade and providing a proportion equal to more than double its span. The interior includes a reredos which by its subjects illustrates the "Te Deum."

Screens are proposed between the chancel and ambulatory, between the chapel and ambulatory, and from the chapel and vestries into the aisles as well as the baptistery at the west end. A rood beam is provided in the chancel arch, with the three figures and emblems of the Passion beneath. The altar ornaments with reredos to be gilded and burnished. It is also hoped to provide in the cornices of both roofs shields with the emblems of the cardinal and theological virtues, the fruits of the Holy Ghost, and other emblems.

The church has been consecrated. The builders were Messrs. Jos. Dorey & Co., Ltd., Brentford, Middlesex, and Mr. John T. Lee was the architect.

The completion of the bays of the chancel embraces the four Evangelists, with the two Apostles in niches in the arches of the screen, and on the south pier of the chancel arch the figure of St. Michael will be shown to the large interior of the nave; also over the vestry entrance in south aisle the three figures of the "Salvator Mundi," with the two angels vested as deacons, as an alternative treatment to that suggested for the east end of the chapel.

NURSERY TRAINING SCHOOL, WELLGARTH ROAD, N.W.

This building has been erected at Golders Green for the Women's Industrial Council by Messrs. John Greenwood, Ltd., from the designs of Messrs. Gilbert H. Lovegrove, F.R.I.B.A., and A. Wyatt Papworth, A.R.I.B.A. The two drawings illustrated were exhibited at the Royal Academy. The work carried on in the new building was commenced a few years ago in King Edward Road, Hackney, and consists in training girls of the middle class in the care of young children. The girls live in the school for a year, and are taught elementary nursing, housewifery, and child training, after which they are qualified to accept positions in private families, the demand being far greater than the supply available in normal times. The children also live in the school, coming from homes where their proper attention is impossible, or from which their absence is advised on medical grounds. The building contains bedrooms and dormitories for the students on the second floor, the nurseries being on the first floor. Each nursery has only a small window towards the north or street front, but to the south or garden front the whole of the side is enclosed by a collapsible partition leading on to a wide verandah, which can also be enclosed by a collapsible partition. The staircases are so arranged that access in case of fire is assured to either one or other of them from all upper rooms, irrespective of any part of the premises should a fire occur. The ground floor contains the warden's office, matron's room, students' common-room and dining-room, kitchen, scullery, and cloak-rooms, all the principal rooms opening on to the arcaded verandah to the south. On the north front is provided the connecting corridor. The laundry, drying-room, and heating chamber are in the basement. Externally the building is faced with mixed Amersham bricks, and the roof is covered with hand-made Hartshill brindled plain tiles; internally the walls for the present have been left plainly distempered. The floors are covered with cork adamant jointless flooring by Messrs. E. J. Moon. The whole of the joinery is stained with soligmum and wax polished. The steel construction is by the Aston Construction Co., Ltd., electrical wiring by Messrs. Speedy Eynon, and the hot-water installation by Mr. Thomas Potterton. Steel sashes and lead glazing for the windows are provided by the Crittall Manufacturing Company.

ARCHITECTURE AND CIVILISATION.

At the opening meeting of the Session of the Royal Institute of British Architects in November last, Professor W. R. Lethaby made the suggestion that members might be kept together, in default of evening meetings, by some sort of informal conferences, strictly among architects, with the hope and intention of doing something "to heal up the internal anarchy of style from which we suffer, more particularly with regard to City works." This proposal was approved by the Council, with the result that the first conference was held on January 24 at Conduit Street under the chairmanship of Mr. F. W. Troup, F.R.I.B.A. The opener was Professor Lethaby himself, who expanded the theme hinted at above under the title of "Architecture and Civilisation."

Professor Lethaby said that though we thought in words and we talked of architecture, and fine designs, and art, and style, and so on, yet we did not seem to notice with our eyes how little of these things we get in the real streets of the real towns we know. People should see towns with their eyes: not as statistics or as history or as town planning on paper, as theory or style, but with their eyes, as they are: the approach, the railway station, the High Street, the food obtainable, the music, the general means of life and civilisation, the houses, the shops, the public buildings, even the lamp posts, and the ugly bletches of the advertisement disease. To remedy all these things we need a bigger centre to work from than the personal one. We need a sense of citizenship, of public order, of national spirit. The R.I.B.A. needs a collective outlook and purpose. It should be more than a large group of people of one calling; it needs to become the faculty for that part of civilisation which is concerned with planning and building of cities. It is not a matter of the whims, the ability, or the genius of the architect; it is a matter of civilisation. The Institute should be a centre where a body of agreed opinion on city buildings could be brought together. In a city public propriety must be considered; no architect has more right to put up an insulting building than to stand on the pavement and slap people's faces. Our few circuses, such as those of Ludgate and Piccadilly, are disgraceful, that at the junction of Tottenham Court Road and Oxford Street is simply infamous. Our great railway stations must be the worst in the world; the new Tube stations are draughty and untidy gashes in the streets' side, and now they are running down into accepted dirt and ineptitude. All the

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streets are netted over across and zigzag with sagging telegraph and telephone wires. Far too long the noble art of building has been a sycophant to snobberies which do not lead to the strength of a nation. There is nothing greater than the honest old craft of building. Yet our public life has been shamefully let down in the appliances of civilisation. Since the coming in of the railway flood we have just scraped along as if we felt that there was no abiding city. Think of the post offices in the back-end of grocers' shops; the police courts of unutterable squalor; the leaky private houses with their cracked ceilings and fireplaces making fog rather than heat. Architecture deals with civilisation, with the means of life, with towns; and we have to find the way to a richer life. One fears that even the excellent town-planning movement may harden into a subject called Town Planning rather than be an outburst of town vitality. Our towns have to be aroused, they must provide themselves with proud public buildings in well-ordered streets, they need better organised gymnastics with a stadium free of mud, they need better means of getting food, especially in the open air. It is not the climate that has prevented the existence of cafés in England—it may have been the brewing interest. We must preserve spaces of clean country near every town, we must have better national music, we must have a sense of something going on, and get out of the ring of stifling stagnation; we must set up something of the Greek ideal of town worship, a sense of community interest and national spirit.

Someday—say five hundred years hence—architects will have to drop this high priest business and take to commonsense, entering into the life of their time for civilisation's sake. Daily experience shows that our own hearts are sick of the vain oblations of style incense to Mumbo Jumbo, while our hearts leap at the sight of a building, if haply we may find one, direct, tidy, intelligible. What should be done? This Institute should find a policy in public work for our towns and concentrate on this question of architecture in civilisation. Further, all the local bodies should follow this lead, and where there are no local bodies the individual architects, surveyors, builders, and men of good will in every town should draw together for the purpose of getting something done in their several towns. To aim at newness of "style" would be worse than to aim at oldness of style. Begin just as we are, and taking it all for granted, let the leading idea of fit and reasonable building for life's sake and the city's sake gradually become the centre of our thoughts and effort. Let us concentrate on our agreements. This Institute should enter into relations with political economists and find out what they think (if anything!) about civilisation. It should try to get into touch with engineers and lead them to be practical and scientific, and to give up their love for squalor and wriggles: to get them to be patriotic and not so readily hire themselves out to further spoil our towns.

Professor Beresford Pite considered that they, as architects, should unselfishly try to forget themselves, and to look at the question as a whole. The first thing to be done would be to do away with the present distinction between builders and architects—in itself a counsel of perfection which strikes at the root idea of the Institute. The operative members of the community are the engineers and surveyors to municipal bodies. Architects have of late stood outside the forces created by progressive thought instead of trying to bring them into line with artistic ideals. That was the only thing which could be done and the only thing needed to be done. The forces exist, and it was for them as architects to unite with the sanitary and municipal workers of the country. The distinction between the Institute and engineers and surveyors ought to be broken down. All this was, of course, contrary to the policy of the Institute. Most of the crimes mentioned by Professor Lethaby are the crimes of engineers. Architects cannot work long without some sort of ideal—lacking it they descend into being tradesmen. Forty years ago the profession was burning with ideals; but now there seemed nothing to excite the young man. If the young men could be shown that the applications of a pure constructive doctrine, the doctrine of fitness, produces beauty, the influence would catch on. So long as there is merely talking about it, nothing will be done. With regard to the town planning movement, let them pray that it will be delivered from cranks. Let us soon have this expression of a real modern, straightforward building sentiment instead of the affectation of picturesqueness and unnaturalness. An architecture which depends on Kate Greenaway will never get forward.

Mr. A. E. Richardson hoped the conferences would lead them to a discussion of fundamentals. Only Spartan simplicity could bring them back to the enthusiasm which animated men of Cockerell's day. The Institute's policy up to the present has been selfish and snobbish.

Mr. H. V. Lanchester thought the conference ought to be continued on some future date so as to give a chance of arriving at a practical solution. All present would agree with Professor Lethaby's aspirations. The question now is "What are the best remedies?" The course to be taken might be considered at the subsequent meeting.

Mr. Weir said the whole thing was a question of education. We want a national spirit, and when we get it we will have a national architecture.

Mr. Dunn opposed the imputation that the architecture of to-day was to be unreservedly condemned. Personally he thought it was an improvement over its immediate predecessors. English homes, for example, have been developed in a marvellous way and are a model for the world. Nor are the young men lacking enthusiasm. Our factories are incomparably better and are very fine. Some people who spelt "art" with a very big A forgot the practical conditions. Education was undoubtedly a very important thing, and English education was not as good as it might be—though its methods are improving. The world will have to turn more and more to a scientific education.

The conference was then adjourned.

THE CARE OF ANCIENT MONUMENTS.*

By C. R. PEERS, Sec.S.A., Chief Inspector of Ancient Monuments and Historic Buildings to H.M. Office of Works and Public Buildings.

THE art of construction is a very ancient art, and many of the results of modern science have been anticipated by rule of thumb centuries ago, to be forgotten and rediscovered in different surroundings. A knowledge of such things is essential in dealing with ancient structures, where a mind in sympathy with the methods and ideals of the past is the only sure guide to a right treatment. It will be obvious at first sight that this will limit our choice of expedients; we must rule out treatments which are convenient and advantageous enough in new works, but incompatible with the old. But this does not mean that the results of modern science are inapplicable to ancient buildings, or that we should use no processes which were not known to their builders. Far from it; our claim to be a generation which values its inheritance of history must rest on our employment of all the means which are at our disposal for the preservation of that inheritance. But they must be used in the right way, and from this spring the limitations which must be observed. An ancient monument, speaking generally, has three precious qualities: its history, its beauty, and its educational value; in attempting to prolong its existence we must not obscure or destroy these qualities. If something must be sacrificed to preserve the rest, the distinction between essentials and non-essentials must be clearly defined, or perhaps it would be more accurate to say that the relative importance of parts which are all by the

* Abstract of a Paper read before the Concrete Institute at a meeting held at Denison House, 296 Vauxhall Bridge Road, S.W., on January 25.

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nature of the case important must be apprehended. Dilapidation, when not due to intentional damage, may be said to arise from two main sources, damp and structural weakness; the accumulated shortcomings of nature and man.

We are accustomed to hear comparisons drawn between the work of former ages and our own, not to our own advantage. This is by no means always fair. There has been good and bad building in all ages, and in the course of nature more of the bad buildings have perished than of the good, and in consequence the achievement of any period which has left an appreciable number of works is liable to be judged on too favourable a ground. Even in such Roman buildings as are left there is no uniform standard of merit.

The Roman tradition of building with two faces and a core was continued in the middle ages, but often with none of the care and thoroughness which was necessary for its success. In the eleventh century, at any rate, the core in many instances was little more than earth and building rubbish packed in between wrought stone faces, these latter in small stones with shallow beds. Such walls would stand no great weight and were also particularly sensitive to any foundation movement or lateral stress, having no natural strength.

In a small building, where stresses are neither great nor complex, a weatherproof wall face protecting a weak core will often serve well enough for the time, but the ruin or reconstruction of many of our mediæval buildings has followed the adoption of such a principle. Walls were pointed in tolerable lime mortar, but built in nothing but clay, and as long as the pointing was able to keep the weather out, they were able to do the work for which they had been designed. But if, through any settlement or stress, a fracture developed, the masonry had no power of resistance, but fell away and became fit for nothing but pulling down, for lack of sound walling to which to bond a repair. It will easily be seen that it is almost impossible to strengthen such a wall so as to prolong its existence appreciably, without destroying its character, considering that its character is the very source of its weakness.

So much for the evil arising from the degradation of a tradition; but the dangers inherent in an imperfect scheme of construction, incidental to the growth of a style, are equally difficult to deal with. An overloaded arch or pier, an ill-calculated thrust, seem to demand for their complete cure so much substitution of new work for old, or such disfiguring ties and supports, that the balance of gain over loss to an ancient building draws perilously near to nothing.

A third evil, for which at present no adequate remedy has been found, is the decay of stone. This is a particularly important matter, as the loss of the surface of an ancient building, though not necessarily affecting its stability, is disastrous for its history and appearance. The causes of stone decay are various, but damp is an almost constant factor. By its agency acids which attack the structure of a stone are carried into its pores, and while a dry surface remains perfect, a ledge on which water can stand, a moulding from which it can hang, or a face down which it commonly runs, will all begin to decay. The cementing material of the stone is attacked and its particles become loose and fall away; and the evil, once started, is progressive and not to be stopped, as has been often attempted, by the application of a weatherproof solution to the surface.

A series of experiments, having for their object the discovery of a really effective treatment, has been in progress for some time at Edinburgh, instituted by the Commissioners of Works; but though certain phenomena have been definitely established, it cannot be said that any general principle of treatment has yet been laid down. The difficulty lies not so much in getting a preservative solution to sink into the stone as in preventing it being drawn out to the surface again in the process of crystallisation and evaporation.

In addition to the loss of a part of its fabric, there are minor losses, inevitable in the repair of any old building. Centuries of neglect have allowed the rain to soak into its walls and plants and bushes to grow upon them, thrusting their roots deep into the masonry and pushing the stones apart. The mortar has gradually yielded to damp and frost and crumbled to dust, or has fallen out, leaving the empty joints to act as channels for rain-water. All decayed mortar and earth must be raked out of the joints to a depth sometimes of a foot to 18 inches; the roots must be pulled out, the voids filled and the facing masonry pointed to keep the wall waterproof. Very little of the old pointing, if it survives at all, will be sound enough to do its work, and as a result nearly the whole of the joints in the walls will be new, and until their newness has worn off the general effect will be far less picturesque than before. The surface of the mortar joint is therefore of great importance, and it may be well to describe the practice of the department in raking out and repointing. All pointing, except on horizontal surfaces and wall tops, is in lime mortar, hydraulic limes being used, as for example, in England, blue lias lime from Leicester or elsewhere; in Scotland, Arden lime; in Wales, Aberthaw lime. The sand is to be as coarse and sharp as possible, and in order to bring it to the surface of the joint it is the practice to spray the joints with water before the mortar is set, in order to wash away the particles of lime and leave the coarse grit exposed. If the joint is more than three inches deep, it is backed with cement mortar up to three inches from the face to avoid the drawbacks of the very slow setting of a large body of lime mortar. Cement pointing is to be avoided because of its colour and its hard and inelastic nature, and therefore greater tendency to crack away from the sides of the joint when set. On wall tops, however, and horizontal ledges it must generally be used, as lime mortar in such places is liable to get soaked with rain and in consequence to break up in frosty weather. If cement is used with a very coarse pebbly grit, breaking up its surface as much as possible, its ugly grey-white colour is less noticeable.

QUEEN SQUARE, BLOOMSBURY, AND ITS NEIGHBOURHOOD.*

By Mr. Philip Norman, LL.D., F.S.A.

In dealing with the subject of Queen Square, Bloomsbury, and its neighbourhood, I have allowed myself some latitude, beginning with a description of an ancient stone reservoir or well-head which had originally formed part of the water system of the Greyfriars of London, and until a few years ago remained underground in the garden of No. 20 Queen Square. After I shall describe the origin of Queen Square and the neighbourhood and the gradual changes there.

Mediæval religious communities in this country, being among the most civilised people of their time, had some idea of sanitation, and as a rule provided themselves with the best water obtainable. They generally drew this from springs at some distance, the supply being gathered in a tank or reservoir, and thence brought through lead pipes to the convent, where it was distributed. Even though no proof were forthcoming, we might be tolerably certain that the important establishment of the Greyfriars near Newgate (a site afterwards occupied by Christ's Hospital) followed the common plan. It happens, however, that the register of that Franciscan convent, compiled by a Friar about the year 1526, is preserved among the Cotton manuscripts in the British Museum, and that it contains an account of their water system, giving curious topographical details. The writer describes how a lead pipe was carried from the convent under Newgate, passing close to St. Sepulchre's Church —how it crossed the Fleet river, and continued west along Holborn until it turned up Leather Lane, and thence to the north-west, by the mill of Thomas de

* A Paper read before the London Society at a meeting held in the Hall of the Royal Society of Arts on January 26.

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Basynge, which we are told was next to the town. From that landmark it traversed an open country, described by FitzStephen, Becket's biographer, a century earlier as "fields for pasture and a delightful plain of meadow land, interspersed with flowing streams, in which stand mills whose clack is very pleasant to the ear"—until, after it had been carried through what had been the termination of the original aqueduct, which was completed about the year 1250, a quarter of a mile further on it reached the limit of an extension, namely, the "little grey house" of the register, which could be seen from a distance. This later and chief reservoir was built in 1300 or very soon afterwards, the first supply being found inadequate. The approximate dates are proved by Mr. C. L. Kingsford in his learned volume on "The Greyfriars of London," published in 1915.

In fact, however, the Friar's account applies to a period now so remote, and the former aspects of the district west and north-west of Leather Lane are so entirely obliterated, that a generation ago the existence of any trace of the Greyfriars' water system was unknown to Londoners.

In the year 1893, in company with three architects of great experience and knowledge—namely, J. T. Micklethwaite, Philip Webb, and Thackeray Turner—I examined a stone staircase arched over and leading down to a large underground stone tank in the garden of No. 20 Queen Square, Bloomsbury, and they pronounced the masonry, or by far the greater part of it, to be, in Webb's words, "Edwardian," which means that it could not be later than the reign of the third Edward. They could tell me nothing more about it, and I determined, if possible, to find out its origin.

The first clues were a remark in Strype's Stow, 1720, that "out of Theobald's Row is Devonshire Street, which runneth northwards into the Fields near the Devil's Conduit," and the following description by Maitland in his "History of London," first edition, 1739: "The Devil's Conduit, which serves Christ's Hospital with water, is enclosed by a wall at the north-west angle of Brunswick Court, Queen Square," Brunswick Court being now named Queen Square Place. The site of the Devil's Conduit, thus described, corresponded exactly with that of the reservoir at the back of No. 20 Queen Square. If it supplied Christ's Hospital, this mediæval reservoir must have supplied the Greyfriars, agreeing, as it did, in style with the method of building practised at the time of the extension of their water system and the description in the register showing that the sources must have been in this immediate neighbourhood. An important clue is the statement that the water of the remoter head is brought "a short distance from the house of the Head, about 15 paces beside the way which is the division of the parishes of St. Giles and St. Andrew"; for at the west end of the garden of No. 20 Queen Square, on a wall still standing, though the garden is now obliterated, are the parish marks of St. George the Martyr and St. George, Bloomsbury, which were cut off respectively from St. Giles in the Fields and St. Andrew, Holborn, in the early years of the eighteenth century. The parish marks are, as nearly as can be, 15 yards from the site of the reservoir.

The evidence seemed enough to prove my case. I was anxious, however, by examining the records of Christ's Hospital to clear up all doubtful points, and through the kindness of the authorities there I was enabled to do so. At first I failed, for in the earlier documents no reference to the water supply could be discovered, perhaps because no difficulty concerning it had arisen, the springs being still in open country. Renewed inquiries, however, produced an examination of the reports of committee meetings which absolutely proved my point. Mr. Lempriere, who has charge of the archives of Christ's Hospital, also found a plan giving the course of the pipe in 1676.

I will now make a few remarks about the Conduit-head in later times, until it was finally abandoned as a source of water supply for Christ's Hospital. In 1661 it was necessary to clear the pipe between the two reservoirs, the nearer and more ancient one being then called the White Conduit. Already the water supply was failing, and the Governors had supplemented it by a lease of water from the New River, which expired in 1665 and which it proposed to renew at a rent of £6, with a fine of like amount. A few years later the springs in a field immediately to the west of our reservoir, and acting as feeders to it, were being fouled by dirty water, which soaked into them.

In 1689 trouble began with Nicholas Barbone, M.D., son of Praise-God Barebones. He was a member of Parliament, originator of fire insurance in this country, and engaged in various speculative projects. He had bought Red Lyon Fields, and was preparing to erect houses over the pipe between this and the White Conduit. Various efforts were made to prevent him, and the opinions were taken of two counsel learned in the law. They agreed that the water system of the Greyfriars had been inherited by Christ's Hospital, with the rest of their property. But one of them, Sir F. Pemberton, thought that though Christ's Hospital owned the pipe, as they did not own the land above, it was almost impossible to prevent building operations until the current of water was actually stopped. Negotiations dragged on with Barbone, but in view of Pemberton's opinion no legal proceedings were taken, and in 1690 Barbone died, having probably built over the pipe in some places, without interfering with the reservoir.

On June 7, 1710, Sir Nathaniel Curzon, ancestor of Earl Curzon of Kedleston, appears on the scene and announces that he "hath some land in Red Lyon ffields which he hath let to build upon." He had probably bought it after the death of Barbone. It extends as far northward as will enclose our Conduit. Shortly afterwards Sir Nathaniel proposes to leave means of access 8 feet wide "to ye chimney conduit, and to pull down the chimney that now is, and to enlarge the head of the said conduit, and to build another chimney or airhole." Here we have a name for the reservoir generally used in the seventeenth and early eighteenth century, and the reason for it—viz., the existence of a large ventilating shaft. It was the custom of our ancestors to apply the term "conduit" to the place of storage rather than to the pipe which conveyed the water. I could not ascertain from the records if any part of the work on the chimney was carried out, but the upper part of the shaft was of brickwork, very likely belonging to this date.

In 1718 Sir Nathaniel Curzon passed away. He had married one of the Penns, of Penn Manor, and was succeeded in this property by his second son, also Nathaniel, who later became the fourth baronet. At a committee meeting on May 5, 1720, a letter from him was read concerning "the Chimney Conduit alias Devil's Conduit in Red Lyon Feilds belonging to the Hospitall." He desires to take down the chimney, and instead thereof to place an image on a pedestal of stone with an airhole at the top. "Whereupon the Committee, in regard to the great worth of said Mr. Curzon and his good disposition to charity, come to a resolution that the agreement settled by Jos. Ayloff Esq. and Paul Joddrell Junr. Esq. be ingrossed and sealed." What became of the "image," whether indeed it was ever put up, I have failed to discover, but the chimney remained. After this there is hardly any mention of the chimney or Devil's Conduit, which has thus been shown to be one and the same, and identified alike with the "remoter head" of the Grey Friars' convent and with the old reservoir at the back of No. 20 Queen Square.

From the Christ's Hospital documents another interesting fact was gleaned. In 1727 it is found that "the White Conduit, which also helps to supply and feed the Chimney Conduit with water, is almost buryed by the ground above it being raised, and also a house built upon

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one corner of the same. The steward is ordered to trace the pipe, so as it may bring the water home to the hospital." Shortly afterwards it is mentioned as being in "Chappel Street," Holborn. Therefore when, many years after I had read a paper on this subject which my friend Mr. Ed. Mann had not heard of, he mentioned to me that during a professional survey on the London estate of the Rugby Charity, he had found an ancient underground chamber at the back of a house in Chapel Street and showed me drawings of it, asking what it could have been used for, I was able to tell him at once that this was the older reservoir which helped to supply the Greyfriars with water.

As to the origin of Queen Square. In the year 1693, the parish of St. Andrew, Holborn, having become too thickly populated, it was proposed to make Red Lion Square (apparently then just built) and the parts adjoining into a separate parish; but the scheme did not mature until 1716, and the still existing church of St. George, Queen Square, originally a chapel, which had been bought by the Commissioners for erecting fifty new churches within the Bills of Mortality, was not consecrated before 1723. Maitland tells us that it was built upon the eastern bank of a cow pond. There, for a generation or two, fashionable marriages took place. The registers show that at one time it must almost have rivalled St. George's, Hanover Square. St. George was selected patron saint because Sir Streynsham Master, who had a hand in building the chapel, had been Governor of Fort St. George, the nucleus of the City of Madras.

The old parish burial ground was bought in 1713 and opened in the next year. It is in the parish of St. Pancras, at the back of the Foundling Hospital, having previously formed part of Lamb's Conduit Fields, which had been a place of promenade of beaux and belles from the parishes of St. Andrew and St. Giles in the Fields, a place of meeting for duellists, and was also used for important cricket matches in the early part of the eighteenth century. There in 1719 the men of Kent played the men of London, as we learn from Mist's Journal. The first person buried in this ground was the pious Robert Nelson, who left directions to that effect in his will, the reason assigned being that he wished "to overcome the aversion that had been discovered for its use." Apparently he succeeded, for his example was followed by such diverse people as Anne, "the prudent and chaste wife of Thomas Gibson," and grand-daughter of Oliver Cromwell, Jonathan Richardson, the portrait painter, Dr. John Campbell, professional man of letters, Nancy Dawson, and Zachary Macaulay.

The building of Queen Square must have begun in the reign of Queen Anne. It was already designed when Hatton published his "New View of London" in 1708, and a few original houses still remain, notably the group on the west side of which No. 6, the present home of the Art Workers' Guild, forms part. The first lease of that house was granted by Sir Nathaniel Curzon, ground landlord.

As far as associations go, apart from the former existence in the garden of the historic conduit-head, perhaps the most interesting house in the square is No. 20, originally the furthest north on the west side. It was long occupied by Dr. John Campbell, mentioned before, who died there in 1775. In his time—or perhaps a few years earlier—the conduit-head which had previously been in Brunswick Place was cut off from there and enclosed in his garden, being by that time, with its staircase, buried many feet underground. Of him Dr. Johnson says: "I used to go pretty often to Campbell's on a Sunday evening, till I began to consider that the shoals of Scotchmen who flocked about him might probably say when anything of mine was well done, 'Ay, ay, he has learnt that of Cawmell.'" It was of Campbell that he made the quaint remark, "I am afraid that he has not seen the inside of a church for many years, but he never passes a church without taking off his hat to it. This shows that he has good principles." The father of Edward Hayes Plumptre, Dean of Wells, died here in 1851. A distinguished lady, Miss Louisa Twining, writer and philanthropist, occupied the house from 1866 to 1882, and had known the neighbourhood long before. During her time Mr. J. H. Parker, of Oxford, once saw the reservoir, or the approach to it, which was being cleaned out, and without knowing anything of its history told her that he believed it to be Tudor. But apparently she had no curiosity on the subject, though she wrote some interesting reminiscences, which have never been published, about the neighbourhood. Miss Twining was succeeded by Mr. Thomas Henry Wyatt, of the War Office, happily still living, son of the President of the Royal Institute of British Architects. No. 20 was sold in 1909, and in 1911-12 the garden with its reservoir was totally obliterated, the soil being dug out to a depth of many feet. The site is now occupied by accommodation for baths and Swedish exercises attached to the Imperial Hotel, Russell Square. At No. 21, a comparatively modern house immediately to the north of No. 20, F. D. Maurice lived when engaged in founding the Working Men's College in Red Lion Square, afterwards moved to Great Ormond Street.

Another noteworthy house was at the south end of the square, where Dr. Charles Burney, the musician, was living with his family in 1772. He has left a record of Captain Cook having dined with him in Queen Square before his second voyage round the world. His daughter, Madame D'Arblay (Miss Fanny Burney) has left the following picturesque description: "A beautiful prospect of the hills ever verdant of Hampstead and Highgate, at that time in unobstructed view, faced the doctor's dwelling in Queen Square." In this and former years many people of high birth or of high attainments made the square or places adjoining it their home. In 1728, among the inhabitants were Lord Windsor and the Bishops of Carlisle, Chester, and Chichester. In 1750 I find from the rate-books that Lord Kingston, Sir Edward Bettenson, Sir Thomas Dyke, Sir James Lowther, Felix Calverte, and Martin Folkes were there. The last named was at one time President of the Royal Society, and also the first President of the Society of Antiquaries after it obtained a Royal Charter in 1751. In 1868 Lord Grimston had a house on the east side, while Lord Baltimore, Lord Harborough, and General Leighton were in Brunswick Court.

To illustrate the former flourishing condition of Queen Square and its decadence, a lady who had long resided in Queen Square is reported by Miss Twining to have said to her, I think about the year 1840, "When I came to the square I was the only householder in it who did not keep a carriage; when I left I was the only one who did."

For about a century or more there was a famous school for girls on the east side called sometimes "The Ladies' Eton." Dr. Kippis relates that as long ago as 1758 Churchill the satirist, then curate and lecturer at the church of St. John the Evangelist, Westminster, was engaged by Mrs. Dennis, the mistress, to teach her pupils "to read and write English with propriety and correctness," and he is said to have "conducted himself in his new employment with all the decorum becoming his clerical profession." The school afterwards passed into the hands of a Mrs. Stevenson, who occupied two large houses, Nos. 24 and 25. In her time Veronica, daughter of James Boswell, was a pupil. In a letter to his friend the Rev. W. J. Temple, grandfather of the late Archbishop of Canterbury, he calls her "Our Queen Square daughter."

During Mrs. Stevenson's reign her young ladies filled one gallery in the church, being taken there by relays in a stately old carriage. At one time they were driven in a like way to St. John's Chapel, Bedford Row, now pulled down. The carriage was afterwards kept in an upper room that pupils might practise the art of getting in and out of it in a becoming manner. Miss

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Twining says, "The school existed, occupying one house only and in greatly diminished numbers in our time, and we were allowed the privilege of taking dancing lessons with young ladies who were taught by the master of the Princess Charlotte." Authorities agree that the school was finally closed during the Crimean War, that is, about 1855.

Of course, I have omitted reference to many distinguished inhabitants of Queen Square. Before quitting the subject I should like to mention one who was there within my own memory—William Morris, poet, artist, and one of the leading men of his generation, carried on business at No. 26 for seventeen years, from 1865 onwards, and for part of the time at least lived above the shop. If my memory can be trusted, his house was an old brick one, simple and unpretentious; there was a large room that had been used for balls at the back. The site, like that of the school, is now covered by the National Hospital for the Paralysed and Epileptic, which has also replaced Nos. 22 and 23, the former a fine building with painted ceiling. Morris, before his marriage—from 1856 to 1859—had lived with Burne-Jones at 17 Red Lion Square—a memorial tablet records the fact. D. G. Rossetti and Deverell were previous occupants.

The well-known lead statue in the garden has been the subject of much controversy. The name of the square was, of course, derived from Queen Anne, and in Allen's "History of London" we are told that it represents her. The late Mr. J. L. Miller, in a short account of the church and parish, 1881, makes a similar statement, which also appears in Cassell's "Old and New London." The writer of the London County Council's "Return of Outdoor Memorials in London," 1910, was doubtful about it. The evidence, however, that it represents Charlotte, wife of George III., is overwhelming. Two quotations from contemporary newspapers will suffice. "Lloyd's Evening Post," February 8-10, 1775, has this paragraph: "The Queen's statue, which is to be put up in Queen Square at the expense of Oliver Becket, Esq., is cast at a statuary's in Pall Mall. It is seven feet high, in the Coronation Robes much like Queen Anne's statue in St. Paul's Churchyard. It is to be placed on a pedestal six feet in height." The treatment of the robes, as mentioned, accounts for the rather archaic look of the statue. The second extract is from the "Morning Post and Advertiser," April 25, 1775: "Yesterday the statue of her Majesty was set up in Queen Square, Ormond Street, under which is the following inscription: 'Virtus et tutamen.'" As to Oliver Becket, the donor, the rate-book shows that he was living on the east side of the square in 1776. It is not likely to be forgotten that in a Zeppelin raid of the autumn of 1915 a bomb was dropped in Queen Square, doing considerable damage to the buildings on both sides. The statue was also struck by one or two small fragments of shrapnel, but without material injury, and a piece was split off the stonework of the pedestal (which never appeared to me to look quite contemporary), revealing the fact that this stonework is merely a casing. The core inside is composed of rather modern brickwork. The disappearance of the Latin motto given above is thus accounted for.

PROFESSOR E. S. PRIOR, M.A., F.S.A., F.R.I.B.A., as Slade Professor of Fine Art at Cambridge, is giving a course of weekly lectures on "Memorial Art" in the Archæological Lecture Room, Cambridge. His opening address took place on January 26. The second will be delivered to-day (Friday) at 3.30 P.M., and is to treat of "The Sarcophagus."

MR. ALFRED T. MANGER, a well-known Dorset magistrate and county councillor, was a few days ago buried in his own grounds at Stock Hill in a grave dug on the site of a church he had intended building for the cottagers of Langham and neighbouring villages. His family will carry out his intentions in regard to the church after the war.

PROPERTY OWNING UNDER WAR CONDITIONS.*

By Mr. EDWIN EVANS, L.C.C.

I PROPOSE first to deal with a recent occurrence which has deeply touched all hearts, viz., the disaster in the East End on Friday (the 19th ult.). I feel I shall be expressing what all present feel when I say how much we sympathise with the bereaved ones concerned, and pray for the speedy recovery of the large numbers of persons injured. This war has made us genuinely sympathetic with pain and sorrow, and we hail with the greatest satisfaction the prompt and substantial relief the Government are extending to the homeless. The severe weather has added much to the sufferings occasioned, and in proportion increases our anxiety and commiseration with the pitiful condition of the victims. Having said this, I feel I ought to touch upon the misfortune which has also befallen the owners of small property in the area affected, such a large number of whom are members of this Association. We have taken prompt action in order to ascertain their position, and the following letter was addressed to Dr. Addison, the Minister of Munitions:—

Property Owners' Protection Association, Ltd.,
17 South Street, Finsbury, E.C.
January 23, 1917.

East End Explosion.

SIR, I am sorry to say that this regrettable accident has brought many anxious inquiries to this office as to whether the Government will recognise claims for damage to the houses in the district.

Most of these owners, certainly nearly all our members, hold their properties subject to heavy mortgage liabilities, and, of course, the payment of ground rent and other outgoings. In several cases it would be quite impossible for these people to reinstate at their own expense, and I am informed by the insurance companies that the damage arising is not covered by the ordinary fire policies, and it would also appear that the Government aircraft insurance does not cover damage in a case of this kind. . . .—I am, &c.,

EDWIN EVANS, *President.*

I know how very anxious those of you who are unfortunate enough to be involved must feel, but it is too early to express any definite opinion upon the legal aspect of the position; but generally speaking, I am afraid from somewhat extensive enquiries I have made, that the usual form of fire policy does not cover damage by an explosion of this kind, indeed, it rather goes towards the assumption that ordinary fire policies exclude insurance against such losses. Notwithstanding this, the great insurance offices are not unmindful of the advantage even from a business point of view of a generous interpretation of their liabilities, and notwithstanding the fact that the Companies have intimated that they will not accept the liability, I am not at all inclined to think this intimation is by any means final. Furthermore an extract from the "Daily Telegraph" of January 25 is very significant.

Ministry and Claims.

Mr. Gordon Brown, on behalf of the Ministry of Munitions, associated himself with what had been said and expressed the profound regret of the Minister and his sincere sympathy with the families. "As you know," he said, "the work was being carried on on behalf of the Minister of Munitions. I am to say that claims made for personal injuries and damage to property will be met by the Ministry. A public announcement will be made as to the arrangements for dealing with claims. These will include the opening within a few days of a special Claims Office, where claims for personal injuries and small claims for damage to property will be met on the spot. The bigger claims will be dealt with otherwise."

These last words in my judgment foreshadow an intention that claims for damage to house property will be recognised by someone; not unlikely the Government and the insurance companies may come to some mutual

* An address given at the annual meeting of the Property Owners' Protection Association, Ltd., at which Mr. Edwin Evans was re-elected President. The meeting was held in the Great Hall of the Cannon Street Hotel on January 25.

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arrangement between them, which will obviate disputes and save from ruin so many unfortunate owners of property. In this connection may I say that the influence and efforts of this Association on behalf of its members (we cannot use it in the interests of those who so often boast they are quite capable of taking care of themselves unaided) will be directed energetically towards pressing for the recognition of all reasonable claims made. I trust this statement will allay some of the very natural anxiety of our supporters, and that what we may be able to do will prove once again the great usefulness of this Association.

Rent Restrictions Act—Lord Rhondda's Warning.

This Act was forced upon us unwillingly by the action of a small minority of over-reaching landlords, who found the temptation to take advantage of war conditions too strong, and raised rents unduly. A few cases were proved of increases of over 50 per cent., but it is common knowledge that the enormous increase in the cost of repairs, additional insurance premiums, and in some cases rates as well, would have amply justified reasonable additions being made to the rents charged, especially in those cases where the owners, owing to competition and dearth of tenants before the war, were unable to get a fair rent sufficient to meet outgoings, and provide a reasonable return for the capital invested. The Association, finding that the Government was quite determined to legislate, set about obtaining amendments to the Bill, and the insertion of protective clauses as to the calling in of mortgages, raising the rates of interest, &c., and we have numerous expressions from our members (and others who have accepted the benefits without paying for them), acknowledging in unmistakable terms their gratitude for the useful work we were able to accomplish.

It is much to be regretted that even now after twelve months working of the Act, a few landlords appear to be disinclined to accept the inevitable and obey the law, and this state of things (I say most unfortunate) has brought about the following warning by Lord Rhondda, the new President of the Local Government Board.

Increases of Rent.—A Timely Reminder.

Lord Rhondda, President of the Local Government Board, has issued the following notice regarding increases of rent:—

Complaints having been received by the Government that the provisions of the Increase of Rent and Mortgage Interest (War Restrictions) Act, 1915, are not being sufficiently observed, it is desired to draw attention again to the principal provisions of the Act as regards rent and ejectment.

1. *Rent may not be increased.*—The landlord of a dwelling house to which the Act applies cannot legally recover payment of rent above that payable on August 3, 1914, *except that* rent may be increased:

(*a*) To cover cost of improvement or structural alteration (not being decoration or repairs); or,

(*b*) To cover increase in local rates paid by the landlord.

Subject to the ruling of the County Court a landlord must not transfer to a tenant any burden or liability (*e.g.*, local rates) previously borne by the landlord, which makes the terms of tenancy less favourable to the tenant.

It is understood that in some cases landlords have improperly increased the rents and carried the increase forward as "arrears." Such arrears could not be recovered at any time.

2. *Tenant may not be ejected.*—So long as he pays the proper rent and performs the other conditions of his tenancy, a tenant cannot be legally ejected unless:

(*a*) He has committed waste or been guilty of a nuisance or annoyance to neighbours; or

(*b*) The premises are reasonably required by the landlord for the occupation of himself or someone employed by himself or by one of his tenants; or

(*c*) There is some other reason which is considered sufficient by the Court for his ejectment.

3. *Houses to which the Act applies.*—The Act applies to a dwelling house (or a part if separately let as a dwelling) where the rent or rateable value of the house or part did not, on August 3, 1914, exceed £35 a year in the Metropolitan Police area and the City of London, £30 in Scotland, and £26 elsewhere. The Act continues in force for six months after the end of the war.

So far as London is concerned we have fully instructed not only our members but the public as well as we could as to the course they should adopt, and we published the whole Act in full, with carefully prepared explanations of each clause. Hundreds of letters have passed between the Association and its members, everything has been done to make things clear. Many of the restrictions we do not like, we do not think they were even fair, but it has been our desire during the war conditions to act loyally towards any reasonable requirements which were considered desirable during the stressful and anxious times of a great national struggle. We have therefore no fear. We were thankful enough to get protection from demands for higher rates of interest by our mortgagees. We received with great relief the provision which prevented mortgagees calling in their principal moneys, and above all, for that clause which permits increased payments for rates being charged against the tenants, a most valuable protection against reckless expenditure by those municipal authorities whose affairs are frequently in the hands of men who, having no property of their own, see no reason why rates should not be 20*s.* in the £, and cannot see that high rates drive away or prevent the coming in of new industrial concerns which provide the money required for municipal expenditure.

And now I want to enter my solemn protest against the action of those Borough Councils who have chosen such times as these to reduce or abolish compounding allowances. I will read you a letter I addressed to the "Morning Post," dealing with the matter, and before doing so, I should like to thank this excellent newspaper for publishing it, and thus enabling the public to appreciate both sides of the question:—

The Property Owners' Protection Association issued to its members, and to kindred associations all over the country, through the National Federation, very full explanations of the effect of the Increase of Rent and Mortgage Interest (War Restrictions) Act, soon after it became law, and I propose at the public meeting of property owners at Cannon Street Hotel on Thursday next to draw attention to the President of the Local Government Board's warning published in Saturday's papers. So far as my information goes, and it is pretty extensive, the provisions of the Act have been well understood by property owners and adhered to by landlords generally. Much of the trouble in London at any rate has arisen through several Borough Councils, notably Islington and Camberwell, Stepney and Fulham, reducing or abolishing altogether compounding allowances to landlords paying rates for tenants whether the houses are occupied or not. My Associations have strongly protested against such unfair treatment during war time, and whilst the rent restrictions under the Act referred to are in force. I venture to hope the Local Government Board will issue a warning to Borough Councils as well as to landlords.

In so far as these Borough Councils are concerned who I say have broken a war truce, I lay upon them the responsibility for much of the unfortunate disputes which have arisen between landlords and their tenants in London. I sincerely hope the President of the Local Government Board will adopt my suggestion and warn these local authorities who are in many cases the real aggressors and rent raisers.

I am of opinion that as regards London, at any rate, it is open to doubt whether compounding allowances should be made at all, and whether tenants should not be reminded of the necessity for reasonable economy by being compelled to pay their rates direct and in full, but in any case, all Borough Councils should adopt the same method. If as was stated by the Committee on Local Taxation it is impossible to collect rates direct from the tenants (which I do not admit), it is only reasonable and honest that they should pay landlords for doing work which they on their own admission are unable to perform. It is ridiculous that on one side of a street separating two boroughs compounding allowances are made and on the other side, in regard to similar houses, such an allowance is refused altogether.

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NURSERY TRAINING SCHOOL, WELLGARTH RO

Messrs. LOVEGROVE

(Royal Academy Exhibition, 1916.)

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J. 2nd 1917.

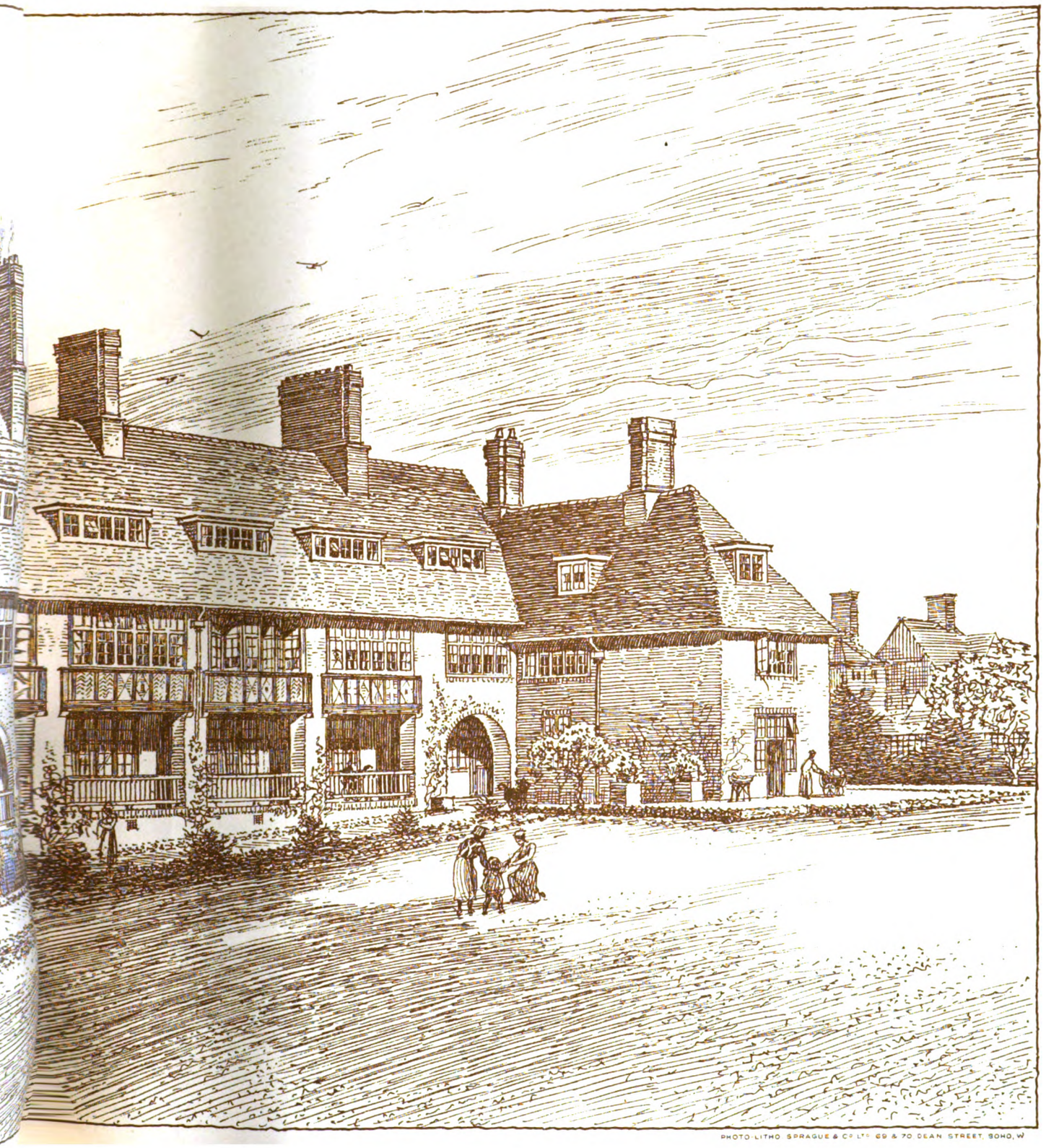


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ELDERS GREEN, N.W. THE GARDEN FRONT.

WORTH, Architects.

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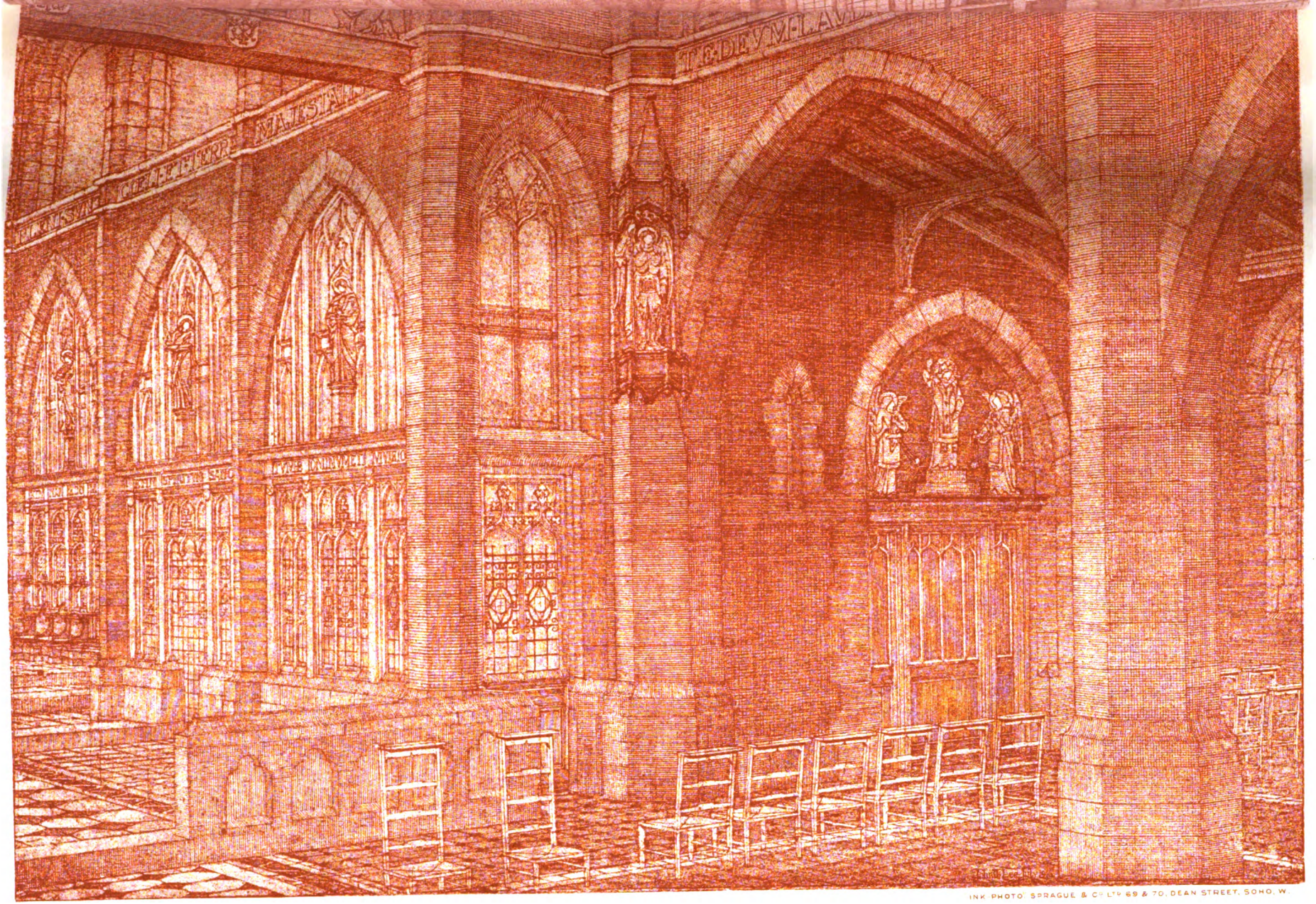
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SCREENS, &C. S. MICHAEL'S, GOLDERS GREEN.

Mr. JOHN T. LEE, Architect.

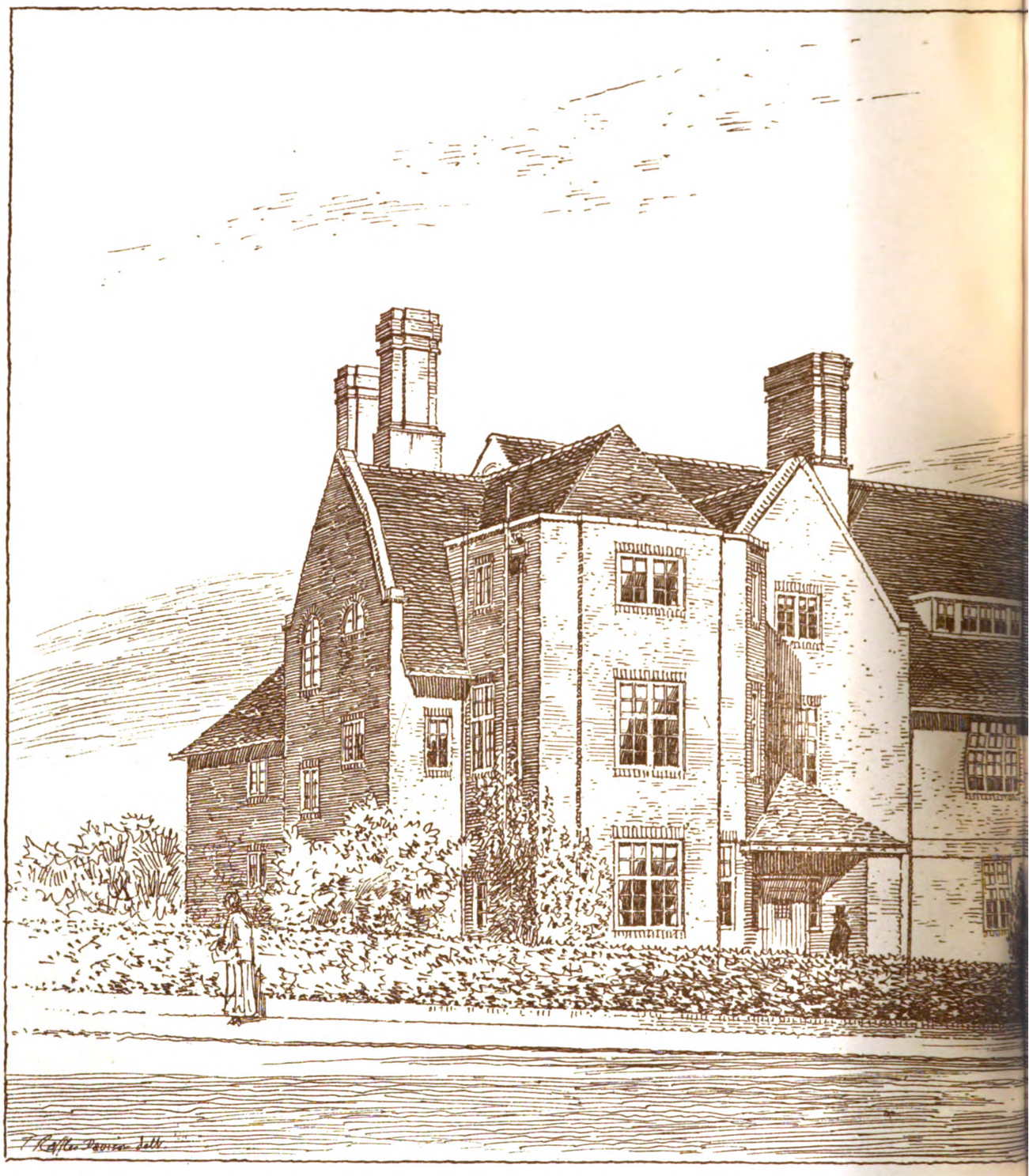
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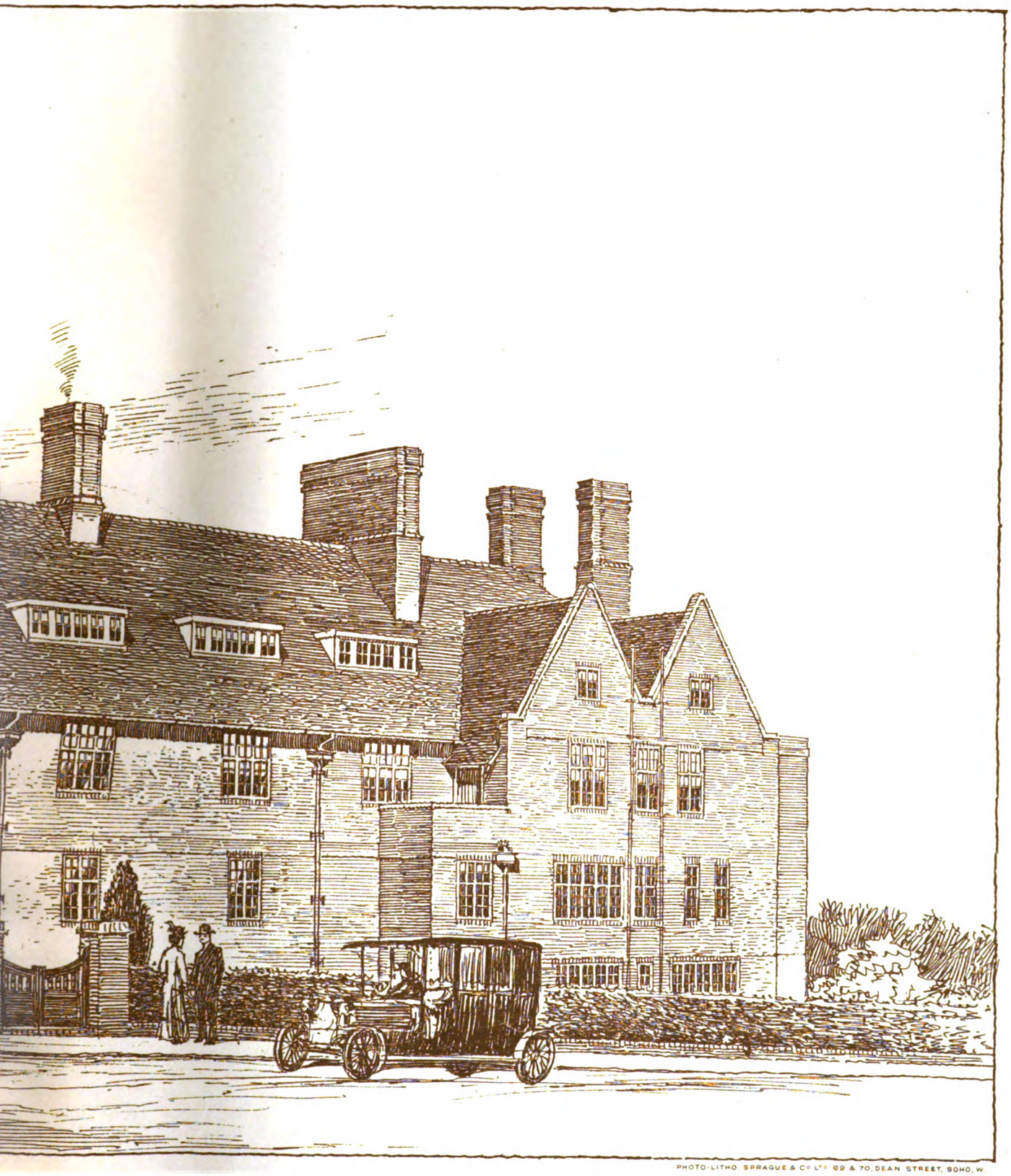


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ROAD, GOLDERS GREEN, N.W.

RTH, Architects.

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The Association are still dealing with the matter, and but for war time it would have taken some more drastic measures than it is thought wise to do at the moment.

Dilapidation Notices.

This is a matter which has been engaging our attention and will engage the attention of the Law Courts very soon, if I am not mistaken. The service of these notices during war time, except in cases of rapidly expiring or very short terms of leases, is a scandal. We have been successful in coming to terms with freeholders and their agents in numerous cases, but the result of certain disputes is not satisfactory. We shall draw the attention of the Government to the matter again and press for a short Bill to protect owners from treatment during the war time which is unworthy of Englishmen, and savours of Hunnism. I will say no more just now. These are serious times, and every one must act with patience and leniency, whilst labour is wanted for fighting our enemies and finally squashing foes who are relentless, cruel and overbearing.

A Word as to the Future.

We cannot, as some have suggested we should, postpone our work until after war time. We would willingly do so, but it is because of the war we are obliged to be more active than ever. The great national struggle has necessitated more watchfulness of our interests than ever, absurd suggestions are cropping up continually and it is up to us to expose them. About a fortnight ago the "Evening Standard" published something like the following:—

"We understand it is rumoured the Prime Minister is in favour of a tax upon the capital value of property. We give this rumour for what it is worth, &c."

I have heard that this tax is to be 6*d*. in the £ on capital value, equal to another rate of 5*s*. in the £. Add this to 5*s*. income tax, add the rates, pay your ground landlord his share and settle up for all sorts of insurance premiums, and find out how much you are then in debt. Really, suggestions like these make us wonder what might happen if we suspended our work during war time. No, rather let every man come up and help us. We are brim full of eagerness and earnestness in our work in protecting owners, but we must have not only your confidence—we know we have that—but your financial support. I am here because you back me, and I am greatly encouraged by your enthusiasm, but I want more backing. I said last year we must double our membership; well we have done it, but it is not sufficient. It must be doubled again this year, and when 1918 arrives I will tell you how much more you must do for me and for yourselves.

Correspondence

[The Editor will not be responsible for the opinions expressed by Correspondents.]

Australian Parliament House Architectural Competition.

SIR,—I have to inform you that the Government, installed November 14, 1916, has now, because of war conditions, indefinitely postponed the reception of designs in the Federal Parliament House Architectural Competition.

The Minister has arranged for the registration of competitors to be retained, and states that it is intended to complete the adopted programme as soon as the time is opportune.—Yours, &c.,

FEDERAL CAPITAL DIRECTOR OF DESIGN AND CONSTRUCTION.

Federal Capital Office, 84 William Street,
Melbourne: December 13, 1916.

Weights, Measures, and Currency Reform.

SIR,—The accidental re-discovery of the British 5 link or 39.6 inch metre gives us a new point of departure. We have also found once more (having apparently abandoned "decimals" in the fifteenth century) a 5 metre rod, pole, or perch, a 20 metre Gunter's chain, a 200 metre furlong; and in area units, a square rod of 25 square metres, and a rood of 1,000 and an acre of 4,000 square metres. In weights we have the metric ton of 2,240 lb., and the cwt. of 100 half-kilograms (British). With little correction and revision, our capacity units are metrically good, and serviceable without any correction at all, as shown in my book "British Trade and the Metric System."

The question before the British public, therefore, boils down to this:—Shall we, as an Empire, adopt the French Metric System, and scrap or alter all native units; or shall we re-establish our native British metre, and keep everything else we have? The first can only be done at the most serious inconvenience possible to ourselves and to the subject races; and the second will, comparatively speaking, cause neither us nor them any inconvenience at all.

A further point to be considered is, that in adopting the French Metric System we shall benefit Germany and Austria more than our friends, whose manufactures have been practically ruined in Belgium, Poland, Roumania, and North France. If our Allies would only agree to accept the British decimal or metric system for trade and manufacture, while retaining the French metric system for science and purely national purposes, it seems to me we might establish an international scheme without any delay. We should not upset the Allies, who have to begin anew; and we ourselves should not be upset either.

As regards our own system, my book shows how, when simplified, it becomes probably the best in the world, and the easiest to learn and apply.

I am no longer afraid of the Decimal Association. Some of their arguments have been invaluable as being equally applicable to the British Decimal System. A perfect system of weights and measures, such as our own, is symbolised by the human hand. The four fingers of one hand, eight in the two hands, sixteen when duplicated by adding the feet, represent the fractional scale. The fingers and thumb together make a "bunch of five," and we get ten, and later twenty, the Decimal Association illustration. If we now add in the wrist we get six radials to each palm, and ultimately twelve and twenty-four, representing the duodecimal scale. I have shown that the British system is composed of three scales, decimal, fractional, and duodecimal, and that we have produced the "distracting jumble" complained of by metric advocates by our own carelessness and misuse of tables and scales. We persist in saying 5½ yards (not 5 metres) make a rod, thus mixing up the fractional and decimal scales. We sell wheat by the bushel at so many pounds weight, mixing up tables of capacity and weight. We used to quote for cotton (and may still do so for all I know) in pounds weight and decimals of a penny, both unsuitably low units for the commodity. Stones of 14 lb. and florins and decimals would have given more convenient results. We can just as easily misuse the Metric System, and discredit it, in the same ways.

We have also to get rid of all stray local units not included in the regular tables, or else we must standardise them.

As regards currency, it is sufficiently decimal in reason already. Reckoning the florin as 100 cents of account (not coined), the shilling is 50, the sixpence 25, and the three-penny bit 12½ cents. With the aid of suitably high measures of all kinds, according to the merchandise, we should never have to use lesser coins, in wholesale trade, than cents of account in rates, and three-penny bits in the cash columns.

For the convenience of retail trade, the wage-earner, and the middle-class consumer, we divide the three-

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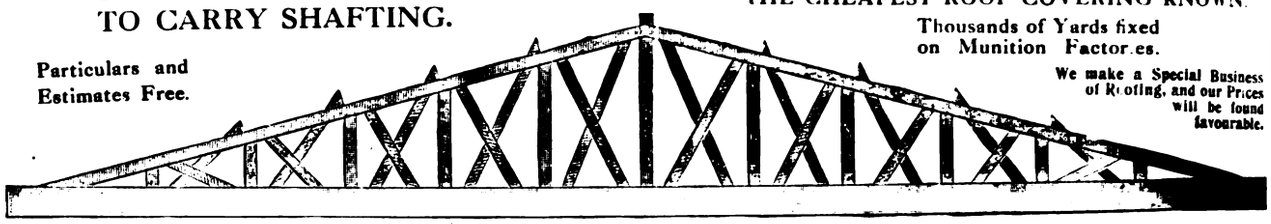
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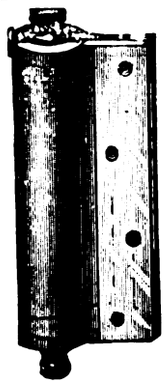
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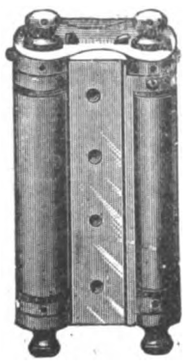
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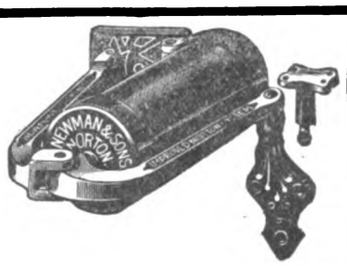


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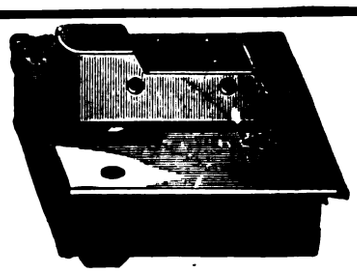


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penny bit into twelve farthings. Since 100 half-kilograms (British) are equal to 112 lb., we see at once that the wholesale dealer can supply cwts. of 100 half-kilos at so much a cwt., which rate divided by 100 gives a decimal rate per half-kilo. The retailer turns this into the nearest fractional currency, and knows he can sell each pound weight of the commodity for that amount, and clear 12 per cent., 10 per cent. profit and 2 per cent. waste.

The great point I wish to make is this: We already have a metric system and do not need another. It is easy to destroy, and terribly hard to rebuild. By reinstating our native metric system we can get back and out of it whenever we wish, or find it healthy to do so. If we adopt the French Metric System, it must be for good and all, and there can be no turning back.—I am, Sir, yours, &c.,

E. A. W. PHILLIPS, M.Inst.C.E.

Hove: January 29, 1917.

The Late Mr. E. R. Robson.

SIR,—Whilst thanking you for the notice of my father in this week's "Architect," I would state in addition that, as well as being a Fellow of the Society of Antiquaries and of the R.I.B.A., he was also one of the Surveyors' Institution, and was an Honorary Member of the R.I. of Painters in Water Colours. The Neo-Greek building for this Institution, in Piccadilly, which was designed in 1883, has had, probably, more influence on certain aspects of design than any other modern work. It was much admired in Paris, and, on the drawing being exhibited there, the author was awarded a gold medal.

"Blackhead," in your notice, should, of course, be "Blackheath, S.E.," where he resided from 1871 when he came to London from Liverpool to undertake the duties of first Architect to the then School Board.

The sentence "finally he set up a private practice in Westminster" is not exact and it is misleading. The facts are:—

He started practice in Adam Street, Adelphi, in conjunction with the late Mr. W. J. Walton (fellow in Mr. Dobson's office) about 1861. On the conclusion of this partnership he migrated to Great George Street, and then, again, to Parliament Street, and finally to 9 Bridge Street—all in Westminster.

From 1871 he held public appointments, but he always retained the right of private practice, giving, however, his first consideration to the public service, often, to my knowledge, at great personal inconvenience and, sometimes even, loss. He was in active practice till the end of 1916, and was, only the year before, assessor in a competition for schools in the Isle of Man.—Yours, &c., PHILIP A. ROBSON.

St. Stephen's House, Westminster, S.W.:
January 27, 1917.

[We thank Mr. Robson for the additional biographical particulars, and regret the printers' error which converted Blackheath into Blackhead.—ED.]

BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

ENGLAND.

CAMBRIDGESHIRE.

Cambridge.—Twelve cottages, Stanley Road, for Mr. T. Buck.

Motor-cycle store, Bridge Street, for Messrs. King & Harper.

CORNWALL.

St. Austell.—Joint isolation hospital for twenty beds.

CUMBERLAND.

Millom.—No. 20 Newton Street: additions for Mr. J. Simm.

ISLE OF WIGHT.

Newport.—The "Crispin" Inn: alterations for Messrs. Mew, Langton & Co., Ltd.

KENT.

Shepherds Well.—"West Court": additions. Mr. Barwick, architect.

LANCASHIRE.

Ashton-under-Lyne.—Music Hall, Welbeck Street: alterations for Mr. J. Bancroft.

Darwen.—Moss Bridge military hospital: addition.

NOTTINGHAMSHIRE.

Worksop.—Offices, Gateford Road: additions for Messrs. Oates, Ltd.

WARWICKSHIRE.

Birmingham.—School, Aston: additions and alterations (£4,400).

YORKSHIRE.

Conisburgh.—Proposed premises for the Sheffield Banking Co., Ltd.

Dewsbury.—Victoria Mills, Batley Carr: reconstruction. Messrs. Kirk, Sons & Ridgway, F.R.I.B.A., architects, Market Place.

Halifax.—St. Luke's War Hospital, Salterhebble: addition. Messrs. C. Williams & Sons, architects, Post Office Buildings, Commercial Street.

Hull.—Proposed Art Gallery (£35,000).

Additions, English Street, for Messrs. C. D. Holmes & Co., Ltd.

Premises, North Street: extension for Messrs. Thornton, Varley & Co.

No. 36 Witham: additions. Messrs. G. Jackson & Sons, builders.

The Young People's Institute, Charlotte Street: additions.

Workshop, Myton and Trundle Streets, for Messrs. G. Clark & Sons.

Thurnscoe.—Wesleyan church.

WALES.

Swansea.—Billiards room and hall, Oxford Street, for Mr. W. Brown.

No. 47 Bryn Road: additions for Mr. W. Lewis.

SCOTLAND.

Aberdeen.—Ashgrove Engineering Works: extension for Mr. A. Wilson.

Works, Commercial Quay and South Esplanade West: extension for Messrs. Clyne, Mitchell & Co., Ltd.

Works, Fortdee: extension for Messrs. Hall & Co.

Works, West North Street: extension for Messrs. Barry Henry & Co.

Glasgow.—Premises, Argyll Street: reconstruction for Finnieston Engineering Co.

No. 177 Reid Street, Bridgeton: extension for the Electric Control Supply, Ltd.

Buildings, Keppochhill Road: alterations for J. K. Macdonald's Trustees.

Motor garage, Whiteinch, for the North British Diesel Engine Works, Ltd.

Port Glasgow.—Proposed forty tenements of workmen's houses.

IRELAND.

Bangor (Co. Down).—Hall, Central Avenue. Mr. O'Neill, M.R.I.A.I., architect, Main Street.

THE death occurred on January 25, in his sixty-third year, at Coverdale Lodge, Richmond, Surrey, of Mr. George Andrew Hobson, M.Inst.C.E., younger son of the late Peter Hobson, of Knaresboro', and nephew of the late Sir James Falshaw, Bart., of Edinburgh, formerly a partner in the firm of Sir Douglas Fox & Partners.

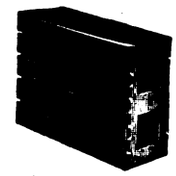
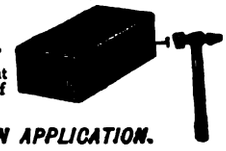
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THE ARCHITECT

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FORTHCOMING EVENTS.

Friday, February 9.

Town Planning Institute: Paper entitled "Monumental Memorials and Town Planning," by Professor S. D. Adshead, F.R.I.B.A.

Monday, February 12.

Royal Society of Arts: Cantor Lecture III. on "Town Planning and Civic Architecture," by Professor A. Beresford Pite, F.R.I.B.A., at 4.30 P.M.

Surveyors' Institution: Paper entitled "Defence of the Realm (Acquisition of Land) Act, 1916," by Mr. Edwin Savill (Member of Council), at 5 P.M.

Tuesday, February 13.

Institution of Heating and Ventilating Engineers: Annual General Meeting at the Holborn Restaurant, W.C., at 5.30 P.M.

Wednesday, February 14.

Manchester Society of Architects: Paper by Mr. Paul Ogden F.R.I.B.A., at 6.30 P.M.

Carpenters' Hall: Lecture entitled "Samuel Pepys—Secretary of the Navy—a Lover of Music," by Professor Sir Frederick Bridge, C.V.O., Mus. Doc., at 7.15 P.M.

TRADE UNION CONDITIONS AFTER THE WAR.

ONE of the most remarkable social phenomena brought about by the war has been the complete abrogation of the elaborate structure of trade-union rules and workshop customs which had been built up by many years of negotiation and, too often, of conflict between employer and employed. These rules and customs were of infinite complexity and variety, some affecting a whole industry, others concerned with no more than a single locality or even workshop. Their abrogation has been effected at the instance of the Government, principally acting through the Ministry of Munitions, for the purpose of accelerating the output of the things required for war—boots and shoes as well as guns and shells. The result of this action is expressed by the writer of a remarkable series of articles which recently appeared in the "Times" under the title of "The Trade Union Outlook" as follows: "We do not think it is any exaggeration to say that the 15,000 or 20,000 establishments, large or small, in every conceivable industry, with which the Ministry of Munitions, the Board of Trade, the War Trade Department, and the Admiralty have been in touch, are now turning out, on an average, more than twice the product per operative employed than they did before the war; whilst, assuming the same standard rates of wages, grade by grade, the labour-cost works out considerably lower than under the old system."

The increase of production which is here credited was essential to the winning of the war. Without it, we and our Allies should have been beaten by the organised manufacturing ability of Germany. We therefore undoubtedly owe a very deep debt of gratitude to the trade-union leaders for facilitating the acceptance by their constituents of a new order of things in industry. It is true that in so doing they did no more than recognise that the workers of the country are an integral portion of the nation, and that any action necessary for the safety of the country as a whole was imperative for themselves. But, nevertheless, the acceptance of the abrogation of the safeguards for their rights which had been laboriously formulated was no small concession.

In any consideration of trade-unionism, it is well to bear in mind what are the primary conditions to the attainment of which such combination is directed. They may be stated very shortly as, first, the prevention, or at least restriction, of unemployment for the skilled workman; second, the maintenance of adequate remuneration for skilled labour. It is to these ends that all the complicated code of traditional workshop customs, as well as the more definitely expressed rules laid down by trade unions, are directed.

Regulations for the standard rates of wages, the length of the normal working day, the arrangements for overtime, night-work, meal-times, and holidays, the exact classes of operatives to be engaged for various kinds of work, the employment or not of non-unionists, the limitation of jobs, the restriction of output—all have for their ultimate object the attainment and maintenance of the primary conditions.

The unfortunate fallacy that has underlain the conception of trade-union rules and the equally important code of traditional customs is that there is only a limited amount of work to go round, and that if any one workman did his utmost, someone else would be short of a job, so that to ensure employment for all the output of each should be restricted.

On the other side, employers have been too much obsessed with the idea that profitable production is dependent on cheap labour; hence the continual struggle between employers and employed, on the one hand to reduce, on the other hand to maintain or enhance, rates of payment.

When the necessities of the war pointed to the importance of increased output, particularly in the engineering trades, the Engineering Employers' Federation, at the instance of the Government, expressed their view that, in order to obtain the maximum output, it was imperative that each employer should possess complete freedom to "dilute" labour by setting one or two skilled mechanics to help and direct a score of less skilled workers; to break up the jobs so as to bring them within the capacity of semi-skilled workers; to introduce automatic machinery and engage non-unionists and unapprenticed men, labourers, and women; to work, if need be, an unlimited number of hours seven days a week, without regard for Factory Acts or holidays; to substitute for the standard time rates whatever piecework or bonus systems they found convenient; and, above all, so to speed up the machinery and abrogate all customary limitations on individual output as to get the very maximum of production.

The consent of the trade unions to the new order of things was obtained with the most binding pledge embodied in the Munitions of War Act, 1915, of an absolute restoration of the practices ruling in our workshops, shipyards, and other industries prior to the war.

Now we come to the irony of the whole situation. Both employers and employed have realised that the new order of things is very much more to their advantage than the restoration of pre-war conditions and practices. Both are ready to recognise the fallacies of their former principles. Employers see that cheap labour is not the best, let alone the fundamental factor of profitable production. Employed find that restriction of output means in effect restriction of wages, and that dilution of labour

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results in higher wages to the skilled workman. It is tolerably certain that the restoration of pre-war conditions, despite the strenuous affirmation of the Trade Union Congress and the Labour Party Congress on the statutory provision for the fulfilment of a binding pledge, is desired by neither employers nor employed.

The correspondent of the "Times" suggests as a means of escape from the embroglio what he terms "A new industrial charter" under five heads: (1) The prevention of unemployment; (2) The maintenance of the standard rates of wages; (3) A constitution for factory and industry; (4) No limitation of output; (5) Freedom for every worker.

The prevention of unemployment is a thing that is easy to stipulate, but needing the highest statesmanship to achieve. The present prosperity for both employers and employed who are engaged in war work is due to the unprecedented demand for manufactured materials brought about by the war. This will cease on the coming of peace, and a substitute for it must be found. The "Times" correspondent suggests that during the first decade after peace there will inevitably be enormous public works and orders of the most diverse kind, probably entailing an aggregate expenditure of many hundreds of millions sterling, and that the Government should so wisely distribute these as to keep the national wage total approximately level.

We are scarcely disposed to consider that this will be enough, and we think that a great expansion of our national commerce must be the chief object of our Governmental policy, so that there may be a continuous absorption of the augmented national output which the war has brought into being.

The maintenance of the standard rates of wages goes very far in the views of the writer in the "Times," involving, for example, the stipulation that "Each workman is to be paid for a full week until definitely discharged with the necessary notice, irrespective of interruptions due to weather, shortage of materials or orders, stoppages of machinery, &c." Such a provision must seem to employers almost impossible, particularly, for example, in the building trade, where the advent of a lengthy frost would ruin a master builder if he had to saddle the risk. The imposition of such terms must, therefore, be accompanied by a State insurance against the loss. The State's liability in case of unemployment must, in short, be extended.

The establishment of a constitution for factory and industry is illustrated by the proposal of Mr. Sparkes for a permanent "Industrial Parliament for the Building Industry," to be composed of twenty members appointed by the National Associated Building Trades Council and a like number representing the Federation of Building Trades Employers. He suggests that:—

"The Parliament would not concern itself with the adjustment of differences or the settlement of disputes. Means already exist for conducting such negotiations and settling such issues. The function of the Parliament would not be judicial or conciliatory, but constructive.

"The agenda of the Parliament would be determined from time to time according to circumstances as they arose. The following matters call urgently for attention from such a joint council of employers and employed in the building industry at the present moment:—

"1. *Regularisation of wages.*—The provision of a graduated scale of minimum rates designed to maintain *real* wages as nearly as possible identical throughout the country. Subsequent advances to be on a national basis.

"2. *Unemployment.*—To acquire a fuller participation in the control of the Board of Trade Labour Exchanges, and to supplement their work by improved organisation special to the building trade for (*a*) the decasualisation of labour and (*b*) by minimising the fluctuation of trade by intelligent anticipation and the augmentation of demand in slack periods, in co-operation with the National Housing and Town Planning Council and the Local Government Board.

"3. *Employment of partially disabled soldiers.*—To consider the employment of partially disabled soldiers and to ensure that the pensions granted by the nation shall not become the means of reducing the standard of wages.

"4. *Technical training and apprenticeship.*—To make provision for adequate technical training for the members of the industry. Apprenticeship, and the regulation of the conditions of entry into the industry.

"5. *Publicity.*—To issue authoritative information upon all matters whereon it is deemed desirable that leaders of public opinion, the Press, and the general public should have exact information.

"6. *Investigation into possible lines of improvement.*—To investigate, in conjunction with experts, foreseeable developments, probable changes, and suggested improvements, such as: Scientific management; industrial control and status of labour; improvements in design and standards of workmanship; closer association between commercial and æsthetic requirements. Additions to this list would be as occasion arose."

The cessation of limitation of output and freedom for every worker—in other words, the abolition of monopoly for the skilled workman—are conditions that have proved essential to the present high increase of national output, and are thus shown to be compatible with high wages for workers and good profits for employers, provided that there is sufficient absorption of the increased output which makes possible the reduction of labour-cost concurrently with the payment of high wages.

NOTES AND COMMENTS.

THE letter from Mr. Arthur H. Barker, which appears in our "Correspondence" column, introduces a subject of considerable interest to those engaged in building. Few of us have ever thought of the effect, from the point of view of conservation of heat and its correlative the preservation of equality of temperature, of different plasters. We use ordinary lime plastering, Sirapite, Keene's, Parian, and the rest from quite other considerations than that of temperature modification. Even the traditional cow-dung mortar for pargetting of flues has been presumed to be the correct thing by reason of its tenacity rather than its heat-resisting qualities, if, indeed, it possesses these in any exceptional degree. We hope, therefore, that all who are interested as manufacturers in any special description of plastering, whether they are cognisant of any peculiar merit in their material in respect of temperature resistance or not, will accede to Mr. Barker's request for samples. Even if they may have made experiments of their own, it might be to their advantage to have their conclusions verified or corrected by independent observation.

The success which has attended the growth of the National Federation of Property Owners and Ratepayers, as evidenced by its annual meeting on January 25 last, gives occasion for an interesting reminiscence by Mr. J. T. Jones, ex-president of the Federation, in the "Liverpool Courier," of the early days when the Liverpool Builders' and Property Owners' Association decided to amalgamate with the National Federation, and not only did so, but, in effect, vitalised the Federation.

The policy of the Ministry of Munitions in regard to injury to persons and property caused by the East London explosion, to which Mr. Evans referred in his presidential address to the National Federation of Property Owners and Ratepayers, as reported in "The Architect" last week, has now been publicly expressed in a notice from the Minister of Munitions stating that, without admitting any liability, he is willing to deal with and pay reasonable claims for damage to property and personal injuries caused by the explosion in East London on January 19. The Minister will not be disposed to regard as reasonable

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claims in respect of damaged premises if the charges for building labour exceed the London building rates.

The extent to which indulgence in strong drink hinders operations in the building trade was the subject of discussion at the annual meeting of the Master Masons' and Brickbuilders' Association of Glasgow and Neighbourhood, the members of which, by a majority, adopted a resolution in favour of prohibition. Things may be different in Glasgow and its neighbourhood, but, as far as Southern England is concerned, we have not found that workmen in the building trade are more prone to indulgence in strong drink than other sections of the community of like standing, except perhaps in the case of blacksmiths, amongst whom, especially the best workmen, there is a considerable number who over-indulge, and, apparently, work all the better for it.

The Huns are evidently beginning to fear reprisals for their wanton destruction of art monuments, and it is therefore not surprising that, with their usual foresight, in the latest meeting of the Budget Committee of the Prussian Diet precautionary measures were recommended with regard to the safety of art monuments against enemy air attacks, and more particularly facilities for the speedy removal in case of need of the irreplaceable treasures of the cathedral at Aix-la-Chapelle.

In Sheffield, as in some other centres of great war activity, building is of national importance for purely war purposes, and it is therefore not surprising that the Sheffield Master Builders' Association should have made an organised and collected effort to retain those of their workmen who are left. Building-trade workmen are undoubtedly of special value in the Army, whose activity is not confined wholly to shooting and bomb-throwing, but building munition factories is also of high importance, and in building "substitutes" and "dilution" of labour are not by any means so effective in place of skilled craftsmen as in many engineering trades.

Glasgow Corporation has by fifty-seven votes to fourteen adopted the report of the Special Committee on Housing and General Town Improvement, which recommended approval of the suggestion in the Town Clerk's letter of October 14 that two outside architects capable of dealing with the housing of the poorer and working classes, general town improvement, and slum dwellings be appointed to act in conjunction with the City Engineer, the General Manager of the City Improvements Department, the Medical Officer of Health, and the Sanitary Inspector. The Committee also recommended the Corporation to proceed with the erection of twenty or thirty tenements for the working, the labouring, and the poorer classes, on ground owned by or to be acquired by the Corporation in the most necessitous districts of the city, or within reasonable proximity of those districts. In view of the great scarcity of dwelling-houses in the city and the great influx of munition and other war workers, which has contributed very largely to such scarcity, the Committee have instructed the Town Clerk to inform the Local Government Board of the proposals, and to ascertain if the Board will be prepared to assist the Corporation financially in carrying out the scheme. In the discussion of the report an attempt was made by some members to commit the Corporation to the principle of cottage-building in preference to tenements. Our own views on this question have been recently clearly expressed, and we are not surprised that the conditions of Glasgow housing and the traditions of the city have led to the adoption of the tenement system.

The problem of adequately housing the workers at Rosyth in anything like the near future is one which promises well nigh to baffle the authorities concerned, writes a correspondent in the "Glasgow Herald." This problem particularly concerns the local authorities of Dunfermline and Edinburgh. A situation has developed in a matter of months to meet which normally almost as many years would have been available. The rapid development of Rosyth has created in the towns affected overcrowding to a very undesirable extent. It is impossible while the war lasts to meet the difficulty in any satisfactory way. The contractors at Rosyth, Messrs. Easton Gibb & Co., and the Admiralty have their temporary huts. The Scottish National Housing Company, who are responsible for the provision of permanent accommodation, promise to have 1,600 houses ready by the end of this year. Only 175 are just now in occupation. That is a substantial contribution to the problem, but it is likely to be the only one. Dunfermline invested £50,000 in the company and made her contribution in that form. Edinburgh is "considering" a scheme for the provision of a garden-city suburb for the benefit of Rosyth workers, though she is becoming anxious as to whether the Rosyth demands are to be permanent or merely temporary. Until she gets an assurance of permanency she is naturally not inclined to embark on any big scheme, much as the Government may at the moment desire it.

In a lecture on "Afforestation," delivered by Sir John Stirling-Maxwell to the Glasgow centre of the Royal Scottish Geographical Society, the lecturer commenced by saying that our natural forests in this country were of little importance, least of all our natural coniferous forests, which were exclusively composed of Scots pine. Many of these forests had disappeared altogether, and their existence was only known by place names and roots found in the moss. Among broad-leaved trees we could claim in the oak and ash the best timber trees of our climate, and the beech, long considered an exotic, had been shown by recent research to be indigenous in the South of England. But many of the trees which thrived best with us, like the sycamore and Spanish chestnut, were introduced from the Continent. The Scots pine, second to none in beauty, still grew to perfection on the eastern side of the watershed from Norfolk up to the Cromarty Firth, though scarcely so well as it did in the drier climates of Saxony, and west of the watershed it was seldom such a good tree. The first exotic conifers to reach us were the spruce and silver fir, brought from the Alps, probably as early as the sixteenth century. After other historical references the lecturer said that in order to secure the forest area required with the least disturbance to other interests it would, as a rule, be necessary to devote whole subjects to afforestation. Even if the most suitable subjects were chosen, the whole area would seldom be of equal value, and it was important that the high and poor ground should not be wasted. Hitherto plantations on such ground had had a bad reputation because the native pine had been wrongly assumed to be hardier than an exotic, and had been planted where snow broke it to pieces and parching winds withered it by stealing from its leaves moisture its roots could not replace while the ground was frozen. The North American trees were equal to these emergencies. They bent under the snow, and refused to give up their moisture to the east wind. They thus enabled afforestation to be carried far beyond the limit of the Scots pine, though not, of course, on wind-swept summits. Our British woods were making a contribution towards the needs of the war, which would leave them depleted for many years; but they were not supplying a tenth part of the timber the nation was using. A Government Committee charged with the duty of increasing the output was very far from being free from difficulties, but it had the advantage of a permanent staff in the shape of two fine regiments of Canadian lumbermen, who had brought their mills from Canada. One or two camps of German prisoners were also employed, but in his judgment not nearly enough. Having shown by statistics that we were mainly dependent on Russia for coniferous timber, Sir John concluded by saying that the forest was required not only to provide shelter for the crofts and winter work

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for their owners, but also to raise the industry and population of lonely outlying districts to a level which could support the comforts, conveniences, and amusements of civilised existence.

In moving the adoption of the report of the Old Edinburgh Club, Mr. W. Moir Bryce, the President, gave some interesting particulars foreshadowing an article to be written by him on the Regalia of the Early Kings of Scotland. It seemed to have been the practice from time immemorial to preserve the regalia of our Sovereigns within the strong walls of the Castle of Edinburgh, and in 1296 the crown of King Alexander III. and his predecessors—back probably to the time of Malcolm Canmore—along with a large collection of articles and royal vestments belonging to the King, was carried off by Edward I. The story was an interesting one, even from a national point of view, and yet it seemed to have been avoided by all our writers of history. The fate of this regalia was known, and the story should prove of interest.

ILLUSTRATIONS.

ST. PAUL'S CHURCH, DERBY LANE, LIVERPOOL.

THE style is Gothic, freely treated and adapted to meet the special requirements of the materials employed.

Externally the church is faced with small silvery-grey bricks, specially made for the work. The roof is covered with hand-made tiles.

The inside of the building, including the vaulted ceiling, is plastered, with the exception of the quoins, arches, and dressings round doors and windows, &c., which are composed of the bricks previously mentioned.

As regards the general design of the church, an attempt has been made to obtain an effect by largeness of scale and dignity of proportions rather than by elaboration of treatment. Broadly speaking, the building consists of the main block (nave and chancel), with three transepts at each side, and with a large square tower at the intersection of the central transepts with the main roof. The effect of the three transepts is very noticeable inside the church by reason of the treatment of the intersecting vaults.

In the transepts at each side of the church, and in the end gable facing Derby Lane, are groups of three tall lancet windows.

The principal dimensions of the building are as follows:—Internal length, 142 ft. 3 in.; width of nave and chancel, 27 ft. 9 in.; total internal width of church, including aisles, 57 ft. 4 in.; height of nave and chancel roof, 40 ft. The tower rises to a height of about 80 ft., and is surmounted by a pointed roof, making the total height to the apex about 108 ft.

Accommodation is provided for a congregation of about 640.

The contractors were Messrs. Morrison & Sons, of Wavertree. Mr. G. Gilbert Scott, F.R.I.B.A., is the architect.

MR. W. G. ROWAN, F.R.I.B.A., of Glasgow, has been informed that his eldest and only surviving son, Private George Neill Rowan, 5th Camerons, who was formerly reported wounded and missing at the battle of Loos, must now be regarded as killed in action.

MR. P. MACGREGOR CHALMERS, Glasgow, has been appointed architect for the Belfast Cathedral. Mr. Macgregor Chalmers's position as a church architect has been recognised throughout Scotland for many years, and his work has been frequently illustrated in our pages.

LIEUT.-COMMANDER W. PARK, D.S.O., who has died in the Royal Naval Hospital at Chatham, was educated at Fettes College, and afterwards was a draughtsman in an architect's office in London. When the war broke out Mr. Park received a commission in the R.N.V.R., and, after qualifying as a flying officer, he served in the Dardanelles campaign. The Distinguished Service Order was conferred on him for gallantry and resource. Contracting malaria, he was invalided home.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

A GENERAL meeting of the Royal Institute was held on Monday last, February 5.

The Hon. Secretary said he deeply regretted to have to announce the death of the last of the Life Members of the Institute, their distinguished and greatly esteemed Fellow, Edward Robert Robson. He had been a member for over fifty-six years, having been elected Associate in 1860 and Fellow in 1864. In middle life he had taken an active part in the affairs of the Institute, having served on the Council, on the Board of Examiners, and on various committees. He was father of their esteemed Fellow, Mr. Philip Appleby Robson.

He further announced the decease of Joseph Foster Wood, of Bristol, elected Associate in 1863 and Fellow in 1910. He was some time President of the Bristol Society of Architects, and represented that body on the Institute Council. Also the decease of Mr. Archibald Dunn, Hon. Associate, elected in 1910.

The Hon. Secretary said he had also to announce the decease of Ernest Montagu Thomas, of the Public Works Department, Madras, elected Fellow in 1913 from the class of Licentiates; and of Edwin Cecil Lawrence, Gilbert Higginbottom, John Powell Edwards, and Christopher Adlersparre, Licentiates.

The Hon. Secretary said he felt sure that members would wish that a letter of sympathy be addressed to Mr. Horace J. Helsdon, Fellow, and Mr. W. Roland Howell, Fellow. Mr. Howell's eldest son, Lieutenant Roland B. Howell, of the Northumberland Fusiliers, was reported wounded and missing in October 1915, and has not been heard of since. The War Office have now intimated that they are forced to believe that he was killed. Mr. Howell's second son, Lieutenant Norman A. Howell, of the Shropshire Light Infantry, who was home for a few days' leave in December, was killed within a week of his return to the Front. Mr. Horace J. Helsdon's eldest son, Lieutenant Harold Leofric Helsdon, of the Dorsetshire Regiment, was also recently killed in action, at the age of twenty.

He thought, too, the occasion ought not to pass without an expression of their deep regret at the passing away whilst still in middle life of one whose friendship was enjoyed by many of the members and who was greatly respected by all—Herbert Batsford, for many years head of the firm of B. T. Batsford, the architectural publishers. The world owed to his enterprise and to his knowledge of and enthusiasm for our art a series of sumptuously produced volumes on architecture, which have helped to influence the taste both of architects and their patrons, and will doubtless be a source of inspiration for future generations.

The Assistant Secretary announced that the following Associates have been nominated as candidates for Fellowship: Percy Morris and Christopher William Frederick Wheeler.

The President announced that the Council propose to submit to his Majesty the King the name of Monsieur Henri Paul Nenot, architect of the New Sorbonne, as a fit recipient of the Royal Gold Medal for the current year. The election will take place on March 5.

The President also announced that the second of the informal conferences on the subject of the Education of the Architect will take place at the Institute on Wednesday, February 21, at 3.30 P.M.

THE Dublin Corporation have received a letter from the Local Government Board intimating that they had approved of the proposal of the Council to borrow from Messrs. Lee, Higginson & Co., of Boston, the sum of one and a half millions of dollars at 6½ per cent. interest for the purpose of erecting in the city dwellings for the working classes. The sanction is given subject to two conditions:—(1) That the total amount of the loan when received should be invested in Government 5 per cent. War Loan, and (2) that the Corporation may from time to time realise such amount of the money as they may require to pay for work done. The loan is to be proceeded with.

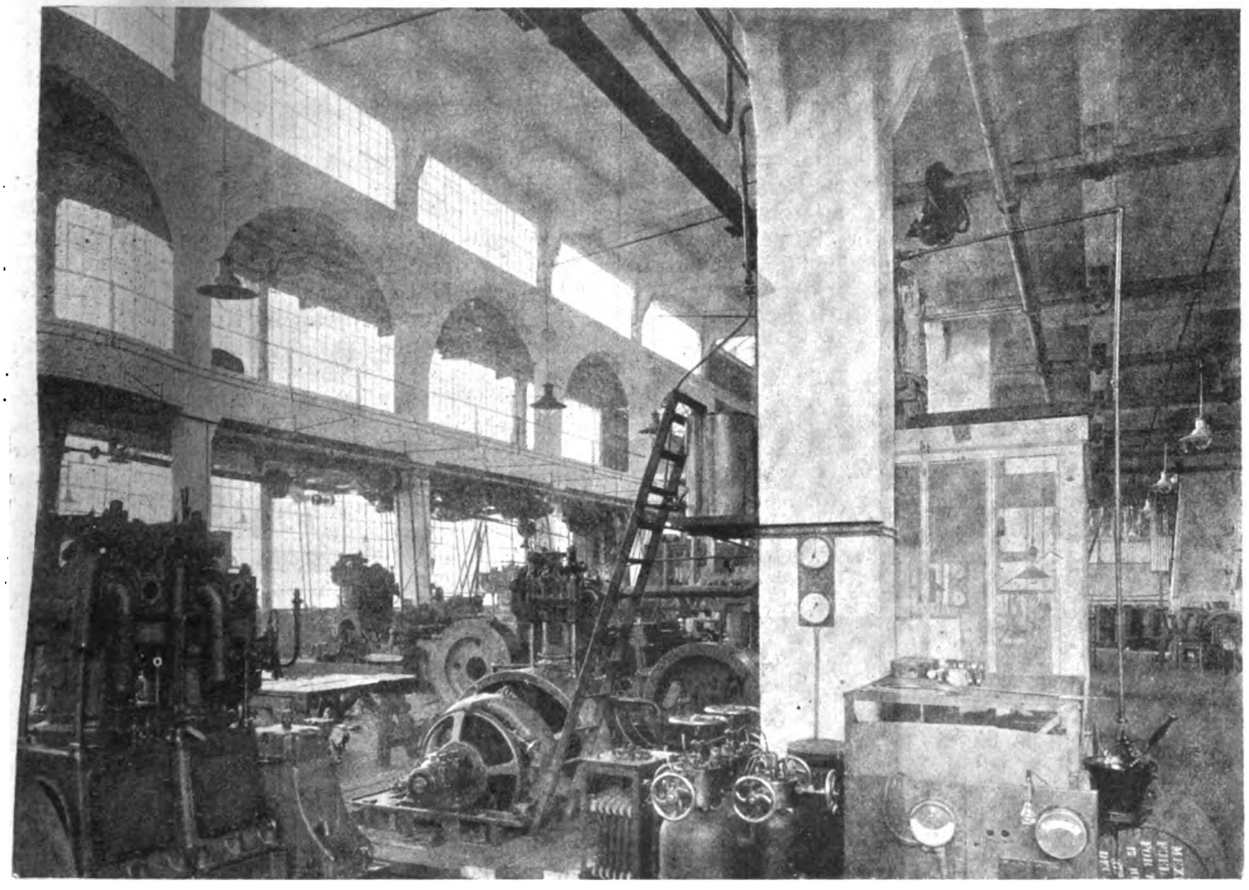
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THE DESIGN AND CONSTRUCTION OF INDUSTRIAL PREMISES.

By A. ALBAN H. SCOTT, Vice-President, Society of Architects, &c.

THERE is only one person who can fully appreciate the enormous difference well and properly designed works make, and that is he who has worked in a cramped, badly ventilated and unsatisfactory building, and afterwards has been transferred to a well designed works. In speaking of well designed works, I do so in the fullest sense of the word.

A factory with a beautiful front is not necessarily a beautiful factory, for a thing that is beautiful in itself and not serving any useful purpose when used in connection with industrial premises is really not beautiful. I do not mean, however, that the necessary work in a factory building cannot be made properly beautiful, nor that works should be designed without beauty. Industrial premises should indicate externally as well as internally that the premises are used for industry, and not as for example, a cinema palace, and I should remind you that a work that is well designed, properly proportioned in harmony with its surroundings and suitable for the purpose is not necessarily more costly than an ill-proportioned structure. The grammar of architecture can be just as well maintained in simple outlines and treatment as it can be in the most floral application.



It is not proposed to deal specially with industrial and factory legislation, except in passing one might remark that its success depends entirely upon the way it is carried out by the employer, employees and inspectors. Since 1847 we have filled volumes of such legislation, plus volumes of regulations, and unfortunately through all this period there has always been difference of opinion between the employer and employees. Curiously enough, what I look upon and hope will prove to be the means of saving many such differences has come into general use without legislation, that is the Welfare Work in factories. What an opportunity for all parties. Welfare workers in industrial works have in the past been engaged in comparatively small numbers; to-day, however, practically all places either have them or arrangements are being made to start.*

Apart from the general improvement of the works as a whole arising through this welfare work, further accommodation becomes desirable, such as proper ambulance rooms for the treatment of accidents, a properly trained nurse being employed on the works. This accommodation should have two rooms, one waiting room and one for treatment, the former being fitted with table and chairs, the latter with proper examining chair and couch, sinks, hot and cold water (sterilised), medicine chest, properly equipped cupboard for dressings, &c., glass-topped table and the usual other fittings of similar nature, including stretcher. The walls and ceilings should be enamelled or tile-lined, the floor also being of some impervious material. These rooms should also have lavatory accommodation handy.

The rest-rooms for women workers are generally placed in a handy position to the ambulance station, so as to enable the same nurse to take charge, these rooms being intended for use when the worker is not really ill, but only temporarily not in a condition to work. One of the principal causes of temporary unfitness has been found to be owing to their having left home without breakfast, in which case a cup of tea and some nourishment generally restores them to a normal condition. This has in many works raised the question as to providing the whole of the employees with some refreshments during the morning, supplied at their machines or place of work, generally at a very small charge. This would be prepared at the works canteen, with which the welfare worker is also closely associated. Canteens in connection with works are now almost universally considered essential, and instead of being accommodated in odd corners of the works, receive proper attention and are well looked after, separate buildings being provided and equipped, so that food can be warmed up which has been

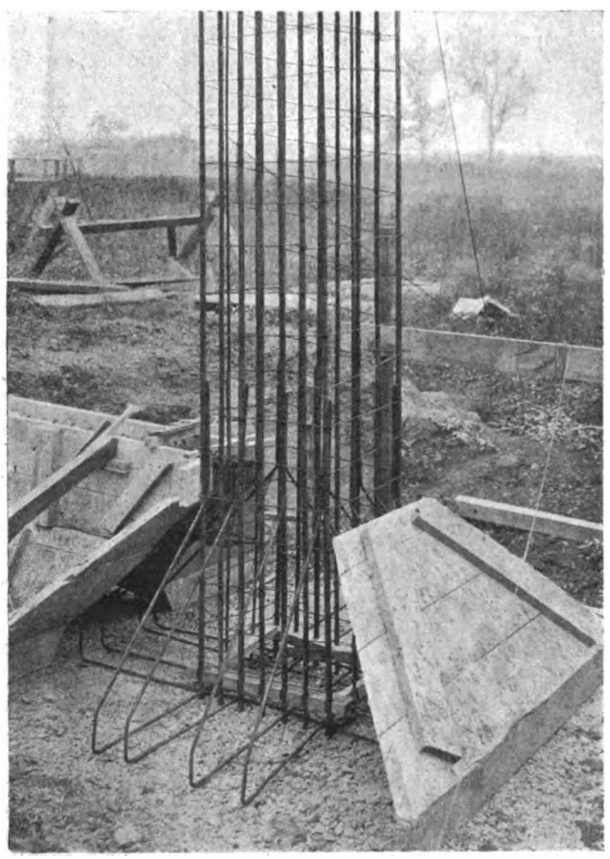
* For details of welfare work *see* "Welfare Work," by E. Dorothea Proud.

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brought from home; full dinners are also provided and a buffet, in rooms well ventilated, heated and lighted.

It is no simple matter to arrange for the equipment of these canteens; we have comparatively few means of cooking, but what a multitude of questions arise. We can use coal or coke (direct heat) or gas, steam, or electric cooking, or a combination of any or all—at the present time we have one canteen for 380 persons fitted up with electric cooking only, one for 350 with steam



and gas, one for 1,200 with steam, gas and electricity, the latter means of cooking to be used at present for roasting only, the cost of current being high, and another for 1,200 in which the means of cooking are not yet decided. It is questionable at what number of workers the various methods become uneconomical, taking also into consideration the cost of the power per unit.

As to where these canteens should be placed in relation to the works requires careful consideration, this depending upon the nature of the whole locality, whether the works are right in a town or on the outskirts, or far from the workers' homes, &c. As a general maxim if the canteen can be close to the works but actually outside the works enclosure, better success is obtained. It is more pleasant for the workers to be right away from the works during meal times. The canteen should be allowed to be used for reading and smoking after lunch, particularly on wet days.

During the principal meal times the works' gates should be closed, and the whole of the shops should be thrown wide open, all ventilating plant running full force and the premises sweetened as much as possible, so that the workers come back well nourished to a clean atmosphere. If sweeping is done in the shops during meal times, it should be arranged so that the premises are perfectly clear of dust well before the workers return.

The position of the canteen brings us to the question of the choice of site for a new factory. So much has been written on this point that I only intend just touching upon it. Due consideration should be given to the fact that the site may have to be used for other purposes than those immediately under consideration. For instance, the site may prove to be too small after a fair number of years, without any possibility of extension. In that case the whole works may have to be sold and a larger site bought, and it should then be possible to sell at a reasonable profit, or the works may be used solely for a special section of the manufacturing work. The conditions of different localities vary so quickly and the requirements of each manufactory are so different, no hard and fast rule can be laid down. Road motor traction, except for the *very* heavy work, has made it possible for works to be laid out almost independent of consideration of rail and water ways, and what a pity the latter are not brought up to date and made so that they can be economically used as to speed. Canal traffic is not in high favour at present, though many are convinced that for the transport of large quantities of goods this method of transport will eventually become speedy and economical. A great problem will be solved in the future by the improvement of the canal banks enabling motor barges to be successfully used; canals will then probably constitute the chief means of transport for certain classes of raw materials and manufactured goods.

(*To be continued.*)

Mr. S. S. Gettings, of Tring, has been appointed the new surveyor and sanitary inspector to the Dorking Urban District Council at an inclusive salary of £250. There were 100 applications for the position.

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CHARING CROSS BRIDGE.

THE London County Council on December 19, 1916, decided that in the event of the South-Eastern and Chatham Railway Company promoting in Parliament in 1917 a Bill seeking powers similar to those refused by Parliament in 1916 relative to Charing Cross Bridge, and on the understanding that the Council should be in no way committed as to its policy in the matter, the Improvements Committee should be authorised to confer with representatives of the various authorities and bodies concerned. The company having deposited a Bill, substantially on the lines of the Bill of last session, for the strengthening of the bridge, the conference was held at the County Hall on January 15, 1917.

Mr. Andrew T. Taylor, chairman of the Improvements Committee, presided at the conference, which was attended by representatives of His Majesty's Office of Works (Sir Alfred Mond, M.P., First Commissioner of His Majesty's Works, &c., Sir Lionel Earle, K.C.B., C.M.G., secretary); the Westminster City Council (Mr. W. S. E. Davis and Mr. S. Gluckstein); the Lambeth Metropolitan Borough Council (the Mayor of Lambeth, Mr. C. H. Gibbs, J.P., and the Town Clerk); the Royal Institute of British Architects (Mr. Ernest Newton, A.R.A., President, and Mr. Reginald Blomfield, R.A., past President), and the London Society (Sir Aston Webb, K.C.V.O., R.A., and Mr. Paul Waterhouse). The Right Hon. John Burns, M.P., and Captain G. S. C. Swinton attended; and Mr. E. G. Moggridge, of the Board of Trade, was also present. The City Corporation was not represented, as the appointment of representatives was not possible until the meeting of the Court of Common Council on January 25, when Mr. Alpheus C. Morton, M.P., Deputy, and Mr. Maximilien M. Samuel were appointed to attend any further conference.

The chairman informed the conference that the Council, in considering the action to be taken in the matter, desired to ascertain the views of the authorities and bodies concerned. From the course of the discussion at the conference it was evident that there had been no abatement of the public interest aroused by the company's proposals in their Bill of last session. There was a general consensus of opinion that the objections urged against the 1916 Bill applied with equal force to the new Bill; and that the questions involved were of national importance, demanding most earnest consideration by public authorities. The opinion was strongly expressed that the present time was not opportune for the public authorities to devote themselves to the working out in detail of a great and important scheme; that it was equally inopportune for Parliament to be asked at the present time to sanction works, neither of grave urgency nor capable of immediate execution, prejudicial to such a scheme; that reasonable time should be permitted, after the conclusion of peace, for the careful consideration of the public questions involved in the company's proposal; and that nothing prejudicial to the due consideration of these questions should, therefore, be decided on at the present time.

The resolution of the conference, supported unanimously by the representatives of the authorities and bodies present, was as follows:—

"That as the improvement of Charing Cross, both as regards the traffic requirements and the amenities generally, is a matter of national importance, this conference is of opinion that the question should not be prejudiced by giving the railway company power to alter the existing bridge during the continuance of the war."

The L.C.C. Parliamentary Committee have reported as follows:—

The South-Eastern and London, Chatham and Dover Railways Bill is substantially the same as that introduced last session for altering and strengthening Charing Cross railway bridge. The main difference is that the Bill, as deposited, contains a clause (9) requiring the company to abandon so much of Railway No. 1 authorised by the Companies' Act of 1900 as is situated over the river Thames. A similar clause was inserted in last session's Bill at the Committee stage in the House of Lords, as representatives of the company stated that, if the powers to execute the proposed works to the bridge were granted, it would render unnecessary the widening of the bridge authorised by the Act of 1900. There are also various clauses inserted for the protection of the Port of London Authority and railway and other companies. According to the statement contained in the preamble of the Bill, the works proposed to be executed are necessary owing to the fact that the bridge has become "inadequate to meet the requirements of the traffic using the same." With regard to the proposal that the company should abandon so much of Railway No. 1 authorised by the Companies' Act of 1900 as is situate over the river, it should be mentioned that their powers expired in August last, but were renewed for one year by the Board of Trade under the powers conferred upon them by the Special Acts (Extension of Time) Act, 1915, on the understanding that the powers would not be exercised during the period of such extension.

The bridge consists of lattice girder spans constructed in two portions at different times, and it is proposed to alter and strengthen the portion of earlier construction on the downstream side. This portion is about 50 feet wide or about half the total width of the bridge. It is proposed to construct masonry piers between the pairs of columns which now support the girders, and to insert under the present structure steel cantilevers which will form an arched form of support. Clause 5 of the new Bill provides that the company shall construct the spans in the form of a continuous curve for the soffit of each span. The bridge at present consists of six spans, each of 154 feet of waterway, and it is proposed to have four spans (the first, fourth, fifth and sixth from the Victoria Embankment side of the river) of 147 feet each at the springing level, and two spans (the second and third) 140 feet each from the springing level.

The Bill introduced last session was opposed by the Council with the object of securing the rejection of the power relating to the bridge in order to allow time for consideration, by all parties interested, of schemes having for their object the improvement, for the purposes of the general traffic and amenities of London, of the area occupied by Charing Cross station and bridge. In support of the Bill the company stated that, owing to the increase of weight in modern rolling stock, the portion of the bridge to which the Bill referred was of insufficient strength, and that consequently it had been necessary to restrict the number of trains passing over the bridge at any one time. In their evidence in support of the Bill, the company did not, however, contend that the proposed works were necessary for safety for the present limited user of the bridge. It appeared that the works were intended to increase the carrying capacity of the bridge so that Charing Cross station might be more fully utilised. The Bill was passed by the House of Lords, but was rejected on second reading in the House of Commons by 67 to 25 votes. The main grounds upon which the rejection of the Bill was urged were æsthetic considerations, the desirableness of moving the station to the south side of the river, and the advantages of a new road bridge in place of the railway bridge.

We have been in communication with the Improvements Committee upon the subject of the new Bill, and they have informed us that, after having given full consideration to the matter and having conferred, as authorised by the Council on December 19, 1916, with representatives of the various authorities and bodies concerned, they are of opinion that the question of the execution of a scheme having for its object the improvement of the area occupied by Charing Cross station and bridge is one of national importance; that the reasons for the rejection of the company's Bill of last session apply with equal force to the present Bill; and that, as the works proposed by the company cannot be executed during the war, and probably not for some time afterwards, the Bill should be opposed by the Council on

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all grounds in order to secure a postponement of the consideration of the whole matter until after the declaration of peace. In explanation of their opinion that consideration of the whole matter should be postponed, the Improvements Committee point out that the present time is not opportune for the public authorities concerned in the future of Charing Cross to consider schemes or enter into commitments for future improvements; that in their judgment the present time is equally inopportune for the company to make application to Parliament for powers prejudicial to any possible scheme of such a nature and not capable of execution until after the war; and that, consistently with this view of the position, the Council should not be asked, as a condition of the rejection or withdrawal of the Bill, to commit itself as to its policy in the matter.

We agree that the reasons which induced the Council to oppose on preamble the Bill which was introduced last session apply with equal force at the present time, and it must, of course, be kept in mind that the Bill of last session was rejected by Parliament. We are of opinion, therefore, that the Council should oppose the new Bill on preamble. We have acquainted the Finance Committee with our intention so to recommend the Council and they have informed us that they have no objection to the action proposed to be taken, provided that it is made perfectly clear that the Council's freedom of action in the matter of any scheme having for its object the improvement of the area in question is in no way restricted. We recommend—

(*a*) That the South-Eastern and London, Chatham and Dover Railways Bill, 1917, be opposed with the object of securing its rejection.

(*b*) That it be an instruction to the Parliamentary Committee in giving effect to the foregoing resolution (*a*) that nothing shall be done to restrict in any way the Council's freedom of action in regard to any scheme having for its object the improvement of the area occupied by Charing Cross railway station and bridge.

(*c*) That in order to give effect to the foregoing resolution (*a*) petitions be sealed and presented against the Bill.

ROYAL SOCIETY OF ANTIQUARIES OF IRELAND.

THE annual general meeting of the Royal Society of Antiquaries of Ireland was held last week at the rooms of the Society, 6 St. Stephen's Green, Dublin, Mr. Thomas Johnson Westropp, M.A., M.R.I.A., President, in the chair.

The report of the Council for 1916, which was adopted, stated that the only fixed meeting not held during the year was the quarterly meeting for May 2, owing to the disturbed state of Dublin. The summer meeting at Limerick was well attended, and the Society, as usual, received everywhere the most gratifying attention and assistance. In connection with the September quarterly meeting a visit was paid to Duleek, and also to Monasterboice and Mellifont. The summer meeting of 1917 is to be held in Connaught, and the Council suggested the city of Galway as the centre for this meeting, which will be held from July 2 to July 7. The Council nominated Mr. Westropp for re-election as president, Mr. Charles McNeill as honorary general secretary, and Mr. H. Bantry White as honorary treasurer; and the following names were submitted as vice-presidents:—For Ulster, T. P. Le Fanu, C.B.; for Munster, G. W. Macnamara, LL.D.; for Leinster, William C. Stubbs, M.A.; for Connaught, H. F. Berry, Litt.D. The following were submitted as members of Council:—F. Elrington Ball, Litt.D.; J. J. Buckley, S. A. O. Fitzpatrick, Sir William Fry, D.L.; Lucas White King, C.S.I., and Andrew Robinson, M.V.O. During the year six members were advanced to the rank of Fellow; one Fellow, twenty-nine members, and five associate members were elected; four Fellows, twenty-nine members, and two associate members resigned, and notification of death was received in twenty-two cases. Regret was expressed at the death of Mr. Robert Cochrane, a former president of the Society, and obituary references were also made to Mr. George Coffey, M.R.I.A.; Mr. Seaton Forrest Milligan, Mr. James Tuite, ex-M.P. The total membership of the Society now stands at 882. The receipts for the past year were £666 18*s.* 8*d.*, as against £610 17*s.* 2*d.* in 1915. The Society's indebtedness was £215, or £25 less than at the end of 1915.

All the suggestions contained in the report were unanimously adopted, including the election of the president, vice-presidents, &c.

It was resolved to authorise the Council to convert 4½ per cent. War Loan Stock into 5 per cent. War Loan Stock, whereby, the president explained, the Society's capital would be appreciated over £800.

An evening meeting was held at 8.15 o'clock, when the following papers were read:—(1) "Five Large Earthworks in Shelbourne, Bordny, Co. Wexford," by the president (illustrated); (2) "The Marchant Tailors' Guild —that of St. John the Baptist, Dublin," by H. F. Berry, I.S.O., Litt.D.

REPOPULATION OF OUR RURAL DISTRICTS.*

ONE of the most potent influences on the depopulation of the rural districts has been the centralisation of manufactures with which the direct attraction of the city is so ultimately connected. The industrial capitalist has sought the town for many definite economic reasons. The wage-earner has been attracted to the towns by the higher wages paid by the industrial capitalist and by the interests, amusements, and educational facilities which he undoubtedly finds in the towns. Wherever capital goes there is a tendency for labour to follow. If the industrial capitalist can be drawn out of the town into the country, the wage-earner will soon go after him, and he will soon create his interests, amusements and educational facilities.

In the garden city conception there lay much wisdom, and it has been unfortunate that the garden city movement has so largely developed into little more than the construction of garden suburbs. The motive of the initiators of the garden city was rather the industrial penetration of the rural districts, than the mere improvement of the life of the town-dweller by taking him out of the city to sleep, beneficial as this is in itself. The policy has only been partially successful. The Letchworth Estate was purchased in 1904, and may be said to have reached in twelve years a tolerably secure position, but its rate of growth has been extremely slow compared with that of towns which spring up by means of natural causes. The history of Letchworth proves the extreme difficulty of endeavouring to force human movements in the presence of adverse economic factors. The arguments in favour of carrying the town boldly into the country can be easily stated and will be readily accepted, but with the advantages there will be certain disadvantages, and it will be convenient to consider these together.

The manufacturer gets the advantage of cheap land, enabling him to erect roomy convenient factories with one storey and a good light. Everything is on one floor and under one roof. The cost of building is less, and the cost of upkeep is less. A high ground rent tends to buildings of many floors, and high buildings entail increased haulage. In many trades—for example, printing—the clear air and absence of dust make for improvement in work.

Again, in the direction of lower rates the manufacturer often finds an economic advantage in the country. The rating question is closely connected with our problem. It will be generally admitted that the rural districts often bear burdens which should be borne by the nation as a whole. If the State were to make larger grants in aid of rates in respect of such national services as education, poor law, and the maintenance of roads, more money

* Abstract of a Paper by Mr. T. G. Chambers, F.S.I., read at a meeting of the Surveyors' Institution.

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would be available for expenditure for the particular benefit of the localities, such as increased telephone facilities, the improvement of local transport service, and the like.

The removal of the factory from the town would, in many cases, also tend to provide the manufacturer with a higher class of labour. The conditions under which the operatives would live would improve their physique and increase their power of production. The operatives could be not only well housed, but they would live under conditions which would make for their greater happiness and well-being all round. Generally speaking, manufacturers requiring the best type of labour would gain, but all manufacturers would not find an advantage. In a great city a certain type of employer is able to draw upon casual labour. Even those who have provided garden dwellings for some of their labourers seem to be compelled to draw a considerable amount of cheap female labour for certain operations from neighbouring congested towns and cities.

Cheap transport is more vital to many industries than is cheap land. The ultimate deciding factor is profit. It is no use offering manufacturers cheap land and a better type of labour if other elements which they have to consider outweigh these. All that has been said on the question of the unification of railways, managements, road and canal transport facilities, has an important bearing on the question of the industrial penetration of the rural districts. Generally speaking, it may be stated that no movement of the kind can be produced unless the capitalist is convinced that it will pay him to set up his enterprise in the country. He cannot be forced to go where he thinks he will lose his money. As we have said, the worker will tend to follow if capital leads the way. But it is necessary to do something to make the worker desire to leave the towns and to keep him in the country.

From the point of view of the operative there are arguments for and against the garden city. On the face of it there are certain material advantages. Life as a whole may be more desirable in theory. His housing conditions may be excellent. He can combine a certain amount of food growing with his ordinary avocations. It must, however, be remembered that the worker in many trades is not very keen on turning out into his garden after his ordinary day's work is done, however much of an economic advantage it may offer him from the point of view of the lecture room. Unless the new city is designed on a certain scale with schools and amenities in excess of its early requirements, the worker will have reasonable fear for the education of his children and for his own and his wife's amusements and interests. The average town worker is not particularly keen on country life, and the very poor cling to their own streets and would not exchange their surroundings for any of the advantages of the garden city.

It is probable also that the worker feels a greater sense of liberty in the large city. He and his family have a greater choice of occupation. If he moves into a new town with less range of employment he runs a greater risk of unemployment. Single industry towns are always liable to become bad places for the operative in the event of economic difficulty affecting the industry. The greater the number of industries the less chance there is of widespread unemployment. Again, the garden city under the control of an employer is not an altogether ideal place from the point of view of the operative. Nevertheless, the question of the wishes and feelings of the operative is a small part of the problem. If the means of livelihood is offered in the new city the operative will go there, and although he may grumble, he will stay there so long as he can earn his living. There will be distinct racial benefits from the improved conditions, but the conclusion we have to accept is that the urban exodus can be obtained only by inducing the capitalist producer to put down his capital in the country.

It may be interesting to consider whether the State could assist the movement to some extent by making employers of labour responsible for the adequate housing of those they employ. In this country 250,000 males and 50,000 females are employed by the national and local governments, 397,000 are employed on the railways, and over 1,000,000 in mines and quarries. Neither the State, nor the local authorities, nor the industrial capitalists have in the past shouldered their responsibilities in the matter of housing. The Central Government, the local authorities, and the railway companies should, in the author's opinion, be made responsible for housing their own servants. The great capitalist corporations of the future, with their large resources, their ability to purchase large blocks of land at a cheap rate, could easily lay out and build on a large scale and could house their operatives in a manner immeasurably superior to those existing, and such a course of action would have a direct effect upon the power of production of their employees, and be beneficial to the community as a whole. The question is admittedly a difficult one. Unless great care was taken there would be serious hostility on the part of labour.

In spite of all the difficulties of the question there is to-day a sufficient movement in the direction of the industrial exodus from cities to warrant a belief that the tendency is likely to continue and to increase in momentum.

The tendency to decentralisation of industry has certainly become marked in the United States. Many manufacturers have realised the disadvantages of city conditions. They have moved to avoid the burden of high rents and high rates and the hindrances to rapid expansion which exist in the congested conditions of the city and where often expansion of any kind is impossible. Improvements in transportation, which enable the manufacturer to be at some distance from his markets of purchase or sale, and the telephone and rapid post system, which enables the policy of a business to be efficiently directed from a mere office in the city, have all aided the movement.

"In recent years," said Weber, "the decentralising movement has taken a still more favourable turn, largely as a result of continued improvements in transportation methods and a more enlightened policy on the part of railway managers, who have learnt that the factor of distance is of minor importance in the expense account as compared with the additions to the revenue that result from a judicious encouragement of industries in small cities along their lines."

To-day we see the same movement growing in this country. Every railway company is now advertising cheap sites for factories bordering their systems. This policy would probably have begun much earlier if we had permitted the railway companies to hold belts of surplus lands.

Much might be done to assist movement by providing a clearing-house for information as to the advantages of different districts from a commercial point of view. Tabulated statements might be prepared by the Board of Trade giving for each district information as to cost of land, rates, means of communication, railway rates, proximity of coal and iron and the raw materials, and other data, to enable manufacturers to judge of the desirability of moving their works. Greater financial assistance might be given to public utility societies instituted for the provision of works of public utility, such as housing schemes, transport facilities, and all that class of enterprise which is intended for group benefit.

The vital problem of the near future is to discover the happy mean between State assistance and State control. There are to-day four classes upon whom the lives of the people may be said to depend: the Central Government, the local authorities, the individual capitalist, and groups of the people themselves, and the future welfare of the mass of the citizens will, to a great extent, be determined by the division of responsibility between these four. The function of the State appears to be that of delegating to the other three the functions which they are best adapted to perform for the general welfare.

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The welfare of the new town of the future will depend to a great extent on enlightened city management. One of the directions in which one may hope to see an improvement is that of raising the status of the permanent city official. Town management in the future should be one of the great professions, requiring a training in economics, civil welfare, town planning, and social work of every description. The position of town manager, and that of assistants in the town management, should be coveted by men of high attainments and great skill. By this means the whole tone of local self-government would be raised. The war has certainly imbued the country with a higher conception of office and duty, and the unrecognised strenuous civic work that has been done throughout all the municipalities of the country during the war cannot possibly be exaggerated. A new spirit has entered into civic life, and no one who has come into close contact with the cities and towns of this country during the last year or two can fail to have felt that an atmosphere has been created that must prove to be permanently beneficial.

But it is in the direction of delegating to the fourth class, the individual groups in the community, greater power and responsibilities, that there lies the greatest hope for our towns in the future. The policy of trusting the people to manage their own affairs can and should be extended wherever it is possible to do so.

If the policy of housing by employers of labour is adopted, it is essential that labour should have a full share in the responsibility of town management. Such communities must be really self-governing units, not controlled by the capitalist, by the municipality, or by the Central Government.

The war has given Western Europe an opportunity of social reconstruction which no other circumstance could have done. We are in a state of flux, and the ultimate consolidation on sound lines conducive to the welfare of the race lies to-day in our own hands, and it depends upon the extent to which we as individuals realise this and are prepared to act that the future of the country depends.

GOVERNMENT CONTROL OF LEAD AND TIMBER.

Under the Defence of the Realm Act the Minister of Munitions has issued an Order that from Feb. 2 no person shall sell, or, except for the purpose of carrying out a contract in writing existing prior to such date for the sale or purchase of lead, enter into any transaction or negotiation in relation to the sale or purchase of lead situated outside the United Kingdom except under a license issued under the authority of the Minister of Munitions.

No person shall purchase or take delivery of any lead situated in the United Kingdom except under a license, or sell, supply or deliver any such lead to any person other than the holder of such a license and in accordance with the terms thereof; provided that no such license shall be required in the case of any sale, purchase, or delivery of such lead—

(*a*) For the purpose of a contract or order for the time being in existence certified to be within Classes A or B of Circular L.33 as to Control of Output issued by the Minister of Munitions on March 31, 1916, where the price paid upon such sale or purchase does not in the case of virgin pig lead exceed £29 per ton net, and in the case of remelted lead, or old or scrap lead, exceed £26 per ton net.

(*b*) For the purpose of necessary repairs or renewals involving the use of not exceeding 1 cwt. of such lead.

No person shall use any lead for the purpose of any manufacture of work except—

(*a*) For the purpose of a contract or order for the time being in existence certified to be within Classes A or B of Circular L.33 as to Control of Output issued by the Minister of Munitions on March 31, 1916.

(*b*) For the purpose of necessary repairs or renewals involving the use of not exceeding 1 cwt. of lead.

(*c*) For the purpose of type casting from lead already in the form of type or purchased for that purpose at the date hereof.

(*d*) Under and in accordance with the terms of a license issued under the authority of the Minister of Munitions.

It is also ordered that all persons shall within ten days from the first day of February, and within seven days from the first day of each succeeding month, send into the Director of Materials (A.M.2. E), Hotel Victoria, Northumberland Avenue, London, S.W., monthly returns of—

(*a*) All lead held by them in stock or otherwise under their control on the last day of the preceding month.

(*b*) All lead purchased or sold by them for future delivery and not yet delivered on such last day together with the names of the sellers to or purchasers from them.

(*c*) All lead delivered to them during the preceding month.

(*d*) All contracts or orders existing on the last day of or entered into during the preceding month requiring for their execution the use of lead for any purpose, specifying the amounts of lead required weekly for the purposes of such contracts or orders and distinguishing between the amounts required for Classes A and B respectively of Circular L.33, and the amounts required for other purposes.

No return, however, is required from any person whose total stock of lead in hand and on order for future delivery to him has not at any time during the preceding month exceeded 1 cwt.

For the purpose of the Order the expression lead shall mean pig lead, whether virgin or remelted, sheet lead, lead pipe, and old and scrap lead, or any of them.

Note.—Licenses to purchase and take delivery of lead situated in the United Kingdom will usually be granted by the Minister of Munitions under the Order for necessary repairs and renewals in the ordinary course of trade, and will also be granted for any other purposes which may be approved by the Minister of Munitions, including manufacture for the purposes of export trade.

The Army Council have taken steps, under the Defence of the Realm Regulations, to assume control of all stocks in the United Kingdom of soft sawn timber, both planed and unplaned, including sleepers, in order to safeguard supplies for military purposes and to prevent further inflation of prices. All dealing in stocks of timber of these descriptions is prohibited until further notice, subject to the proviso that deliveries may be made under existing contracts or that sales may be made to any one person of not more than two standards at prices not exceeding those current during last week. The purchase of timber of these descriptions not already in stock in the United Kingdom is also prohibited until further notice. A further announcement will be made in the course of a few days.

The Civics Institute of Ireland has granted permission to the Architectural Association of Ireland to exhibit for a further short period the Dublin Town-planning Competition drawings recently on view at the Chamber of Commerce. The drawings have been on view in the Association's premises, 15 South Frederick Lane, from February 5, from 11 A.M. to 1 P.M. and 2 P.M. to 6 P.M., except upon Saturdays and Sundays. There is no charge for admittance.

Mr. Registrar D. E. Stephens Davies, Trawsmawr, Carmarthen, has asked the Carmarthenshire Antiquarian Society to accept on long loan the three stones—the Cunegni, the Severinus, and Latin Cross, which for over seventy years have stood erect at Trawsmawr. The society have asked permission of the vicar and trustees of St. Peter's Church House, Carmarthen, to deposit them temporarily in the entrance hall of the house. At the end of the war the society will consider the question of acquiring larger premises for its library and museum.

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ST. PAUL'S CHURCH, DERBY LANE, LIVERPOOL. VIEW OF CHANCEL, SHOWING ORGAN, &C.

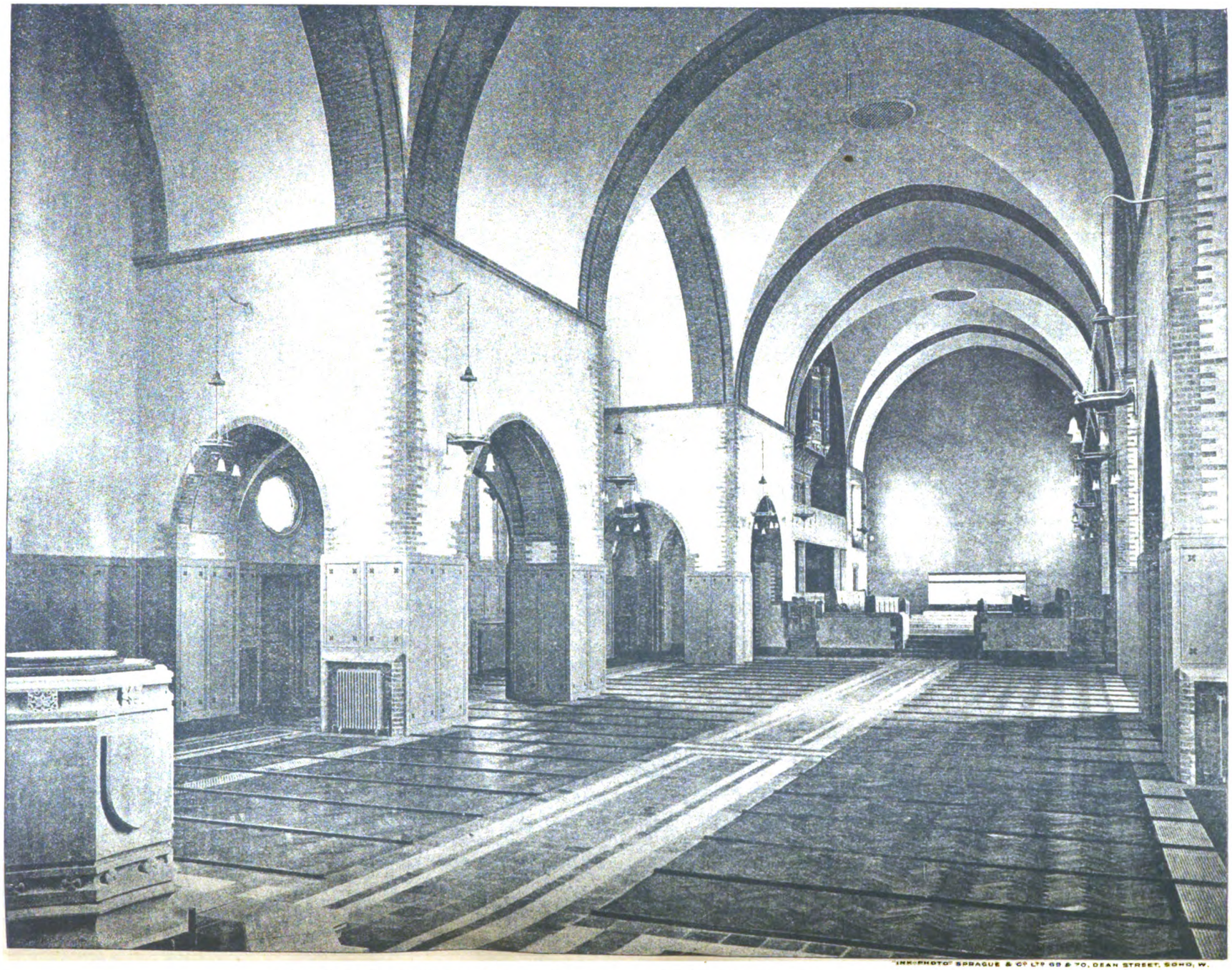
Mr. G. GILBERT SCOTT, F.R.I.B.A., Architect.

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ST. PAUL'S CHURCH, DERBY LANE, LIVERPOOL. INTERIOR LOOKING EAST.

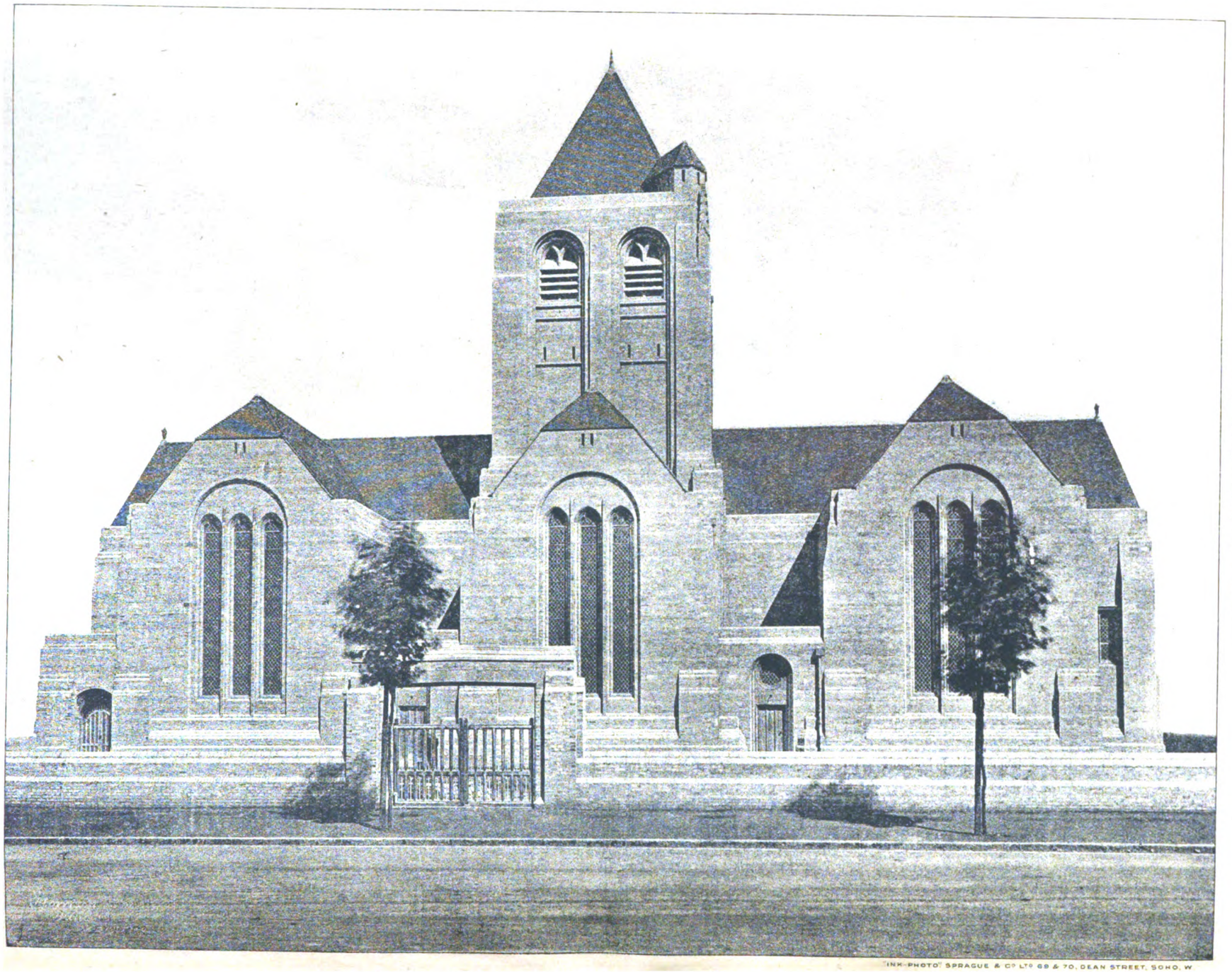
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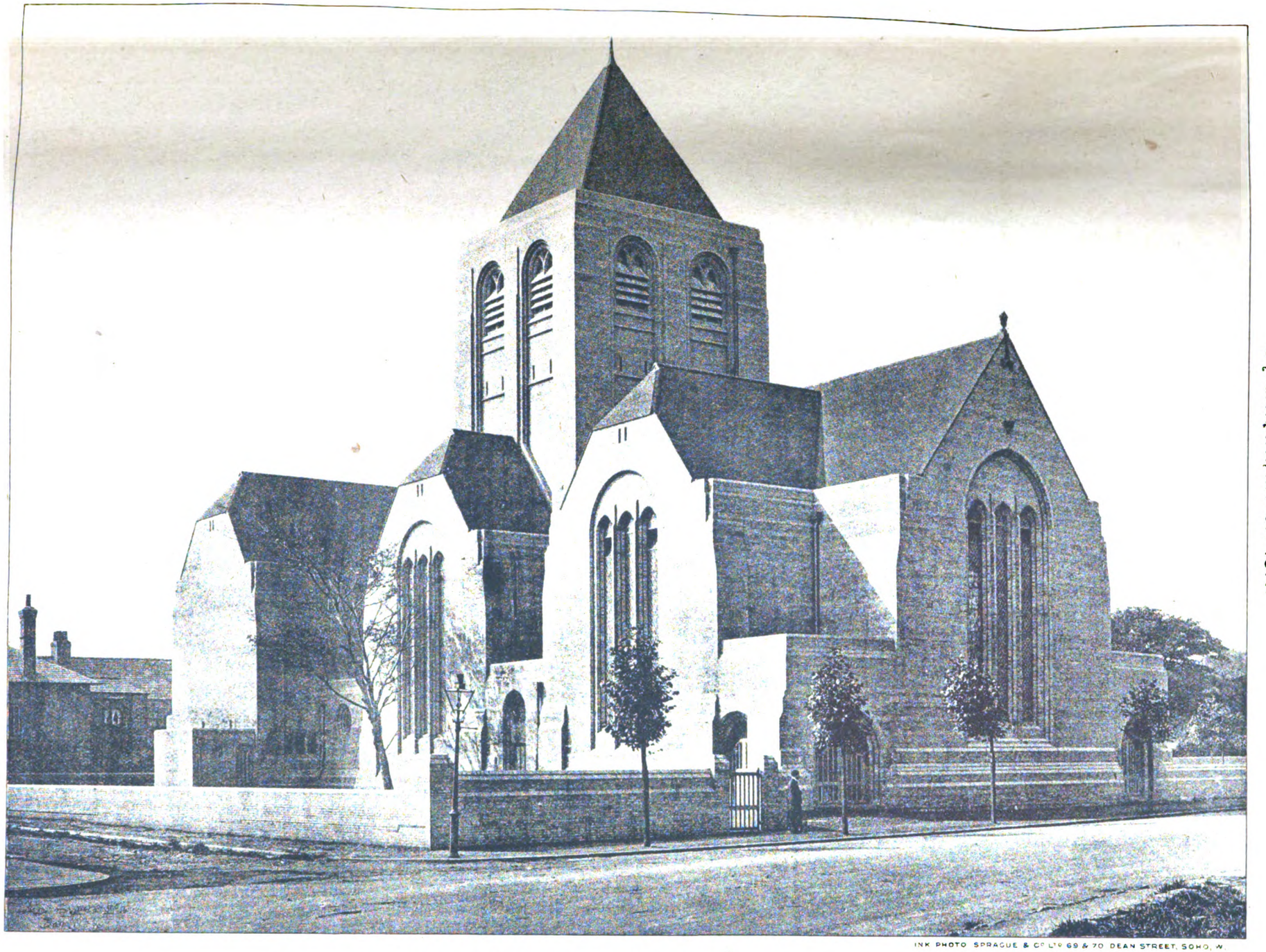
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ST. PAUL'S CHURCH, DERBY LANE, LIVERPOOL. VIEW FROM NORTH WEST.

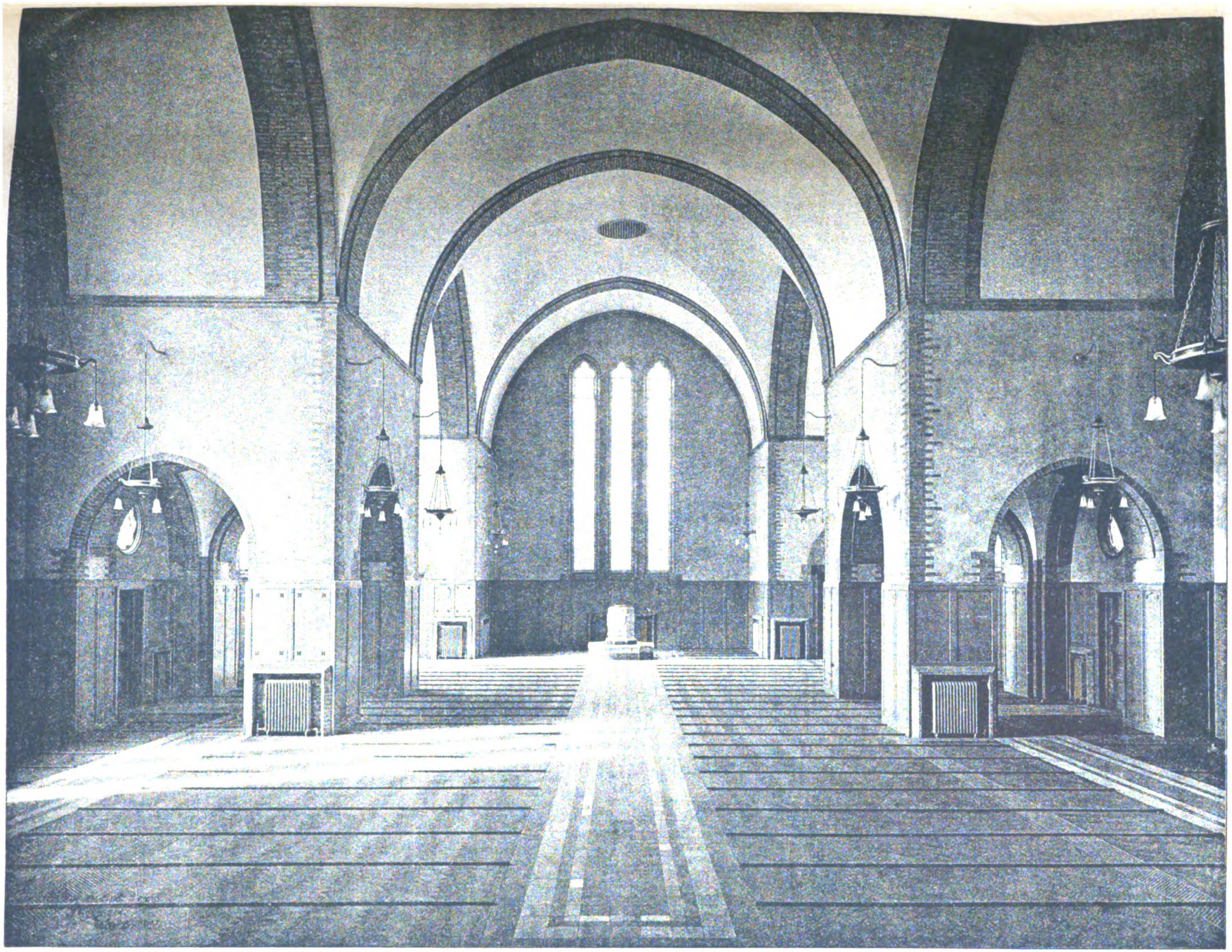
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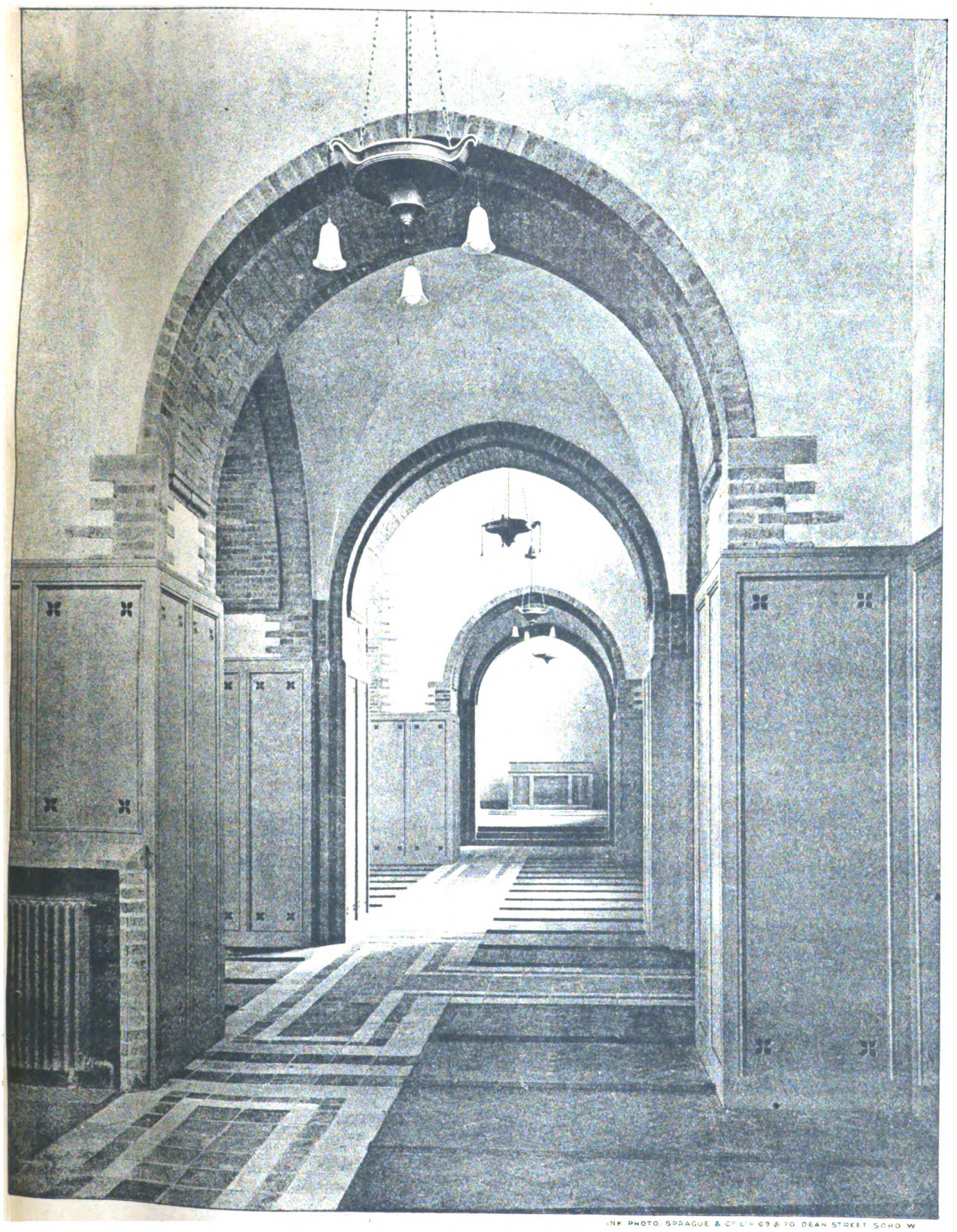
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Mr. G. GILBERT SCOTT, F.R.I.B.A., Architect.

(Royal Scottish Academy, 1916.)

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Correspondence

[The Editor will not be responsible for the opinions expressed by Correspondents.]

Wall Plaster and Heat Retention.

SIR,—I am engaged on behalf of the Committee on Fuel Economy of the British Association in making investigations on the consumption of fuel for domestic heating and other purposes with a view to economising the national resources. One branch of this investigation has as its object to determine forms of building construction which will reduce the loss of heat through the walls of a dwelling-house. In this connection I am endeavouring to compare the heat-retaining effect of different kinds of plaster applied to the inner surfaces of walls.

There must be many inexpensive compositions known to some of your readers which will probably produce a great effect in this direction. I write, therefore, to ask any such persons who are interested in this most important national problem, and who are in a position to submit suitable samples, to communicate with me at the University College.

We have erected in the laboratories here an apparatus capable of making tests of the exact effect of such plaster, and I should be prepared to submit any samples sent to me to that test if it appeared to offer any prospect of success.

May I request you, therefore, to ask any of your readers to give us their assistance in this nationally important matter?—Yours, &c.,

A. H. BARKER,
Department of Heating and Ventilating Engineer,
University College, London.
February 2, 1917.

Architecture and Civilisation.

SIR,—Your report last week of the opening R.I.B.A. afternoon conference suggests how conclusively Professor Lethaby showed that "the time is out of joint." It is sadly significant that most of us have meekly accepted as if they were weaknesses inherent in human flesh—and therefore as inevitable as influenza or the income tax—the very things which Professor Lethaby protests against. By no means all the evils are to be laid at the door of our municipal engineers. For example, architects are solely to blame for the cat and dog life of most neighbouring street fronts. The public are to blame for the badness of our music, the untidiness of our thoroughfares, and the vulgarity of our amusements. Successive generations must be blamed for the present degradation of our politics. How can this Augean stable be cleaned out? The holding of meetings among the elect does not offer much promise. It is necessary to influence the greatest number in the shortest possible time. My suggestion is that Professor Lethaby, and all who are really in earnest about Architecture and Civilisation, should stand for election on their local authority so that they can try to leaven the lump. It is a national calamity that our local bodies should be almost exclusively drawn from the tradesman class. Herein probably lies the cause of many of those evils we now deplore. Our local Government may be on the whole remarkably free from corruption. But the men on it can only act intellectually according to their lights. Architects have a chance of raising the standard of illumination. Of course, the same obligation applies to all men of education and good taste. Our city and village fathers should not be recruited exclusively from the butcher, baker and candlestick maker. These worthy tradesmen should have a share, but not a monopoly.—Yours, &c.,

A. B.

BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

ENGLAND.

BUCKINGHAMSHIRE.

Chalfont St. Giles.—Helmet factory: alterations.

DEVON.

Barnstaple.—Six Houses, St. George's Road, Yeo Vale. Messrs. Oliver & Son, architects, Bridge End.

ESSEX.

East Ham.—No. 471 Katherine Road, Forest Gate: conversion into double-tenement house. Mr. H. C. Horswill, builder, 182 Green Street, Forest Gate.

No. 3 Gooseley Lane: additions and alterations for Mr. A. Tyler.

Chemical Works, High Street South: additions for Messrs. Burgoyne, Burbidges & Co.

Workshop, Holloway Road, for Messrs. W. W. Hinge, Ltd.

West Ham.—Premises, Cody Road: additions for the London Fellmongering Company.

The "King's Head" p.h., Broadway: additions and alterations.

The "Victoria Dock" Tavern, Victoria Dock Road: additions and alterations. Mr. J. Gladwell, architect, Essex House, High Street, Stratford.

LANCASHIRE.

Barrow-in-Furness.—Proposed secondary school.

Walkden.—Bridgewater Mill, Sandwich Street: extensions for Messrs. J. Booth & Co.

LINCOLNSHIRE.

Scartho.—Proposed tuberculosis hospital.

Ulceby.—Cottage: additions for Mr. R. E. Wilks.

NORTHAMPTONSHIRE.

Irthlingborough.—Motor garage for Messrs. Hatton & Shaw.

NORTHUMBERLAND.

Newcastle-on-Tyne.—The "Victoria" Hotel, Newgate Street: proposed reconstruction.

SURREY.

Barnes.—Six houses, Westwood Road. Mr. E. Bates, A.R.I.B.A., architect, 27 Queen Victoria Street, London, E.C.

WARWICKSHIRE.

Binley.—Thirty houses, Binley and Grange Avenues, for Messrs. Merry & Cuninghame, Ltd.

Coventry.—Foundry, Shackleton Road, for the Star Foundry Co.

Foundry, Trafalgar Street, for the Coventry Metal and Iron Co., Ltd.

Nineteen houses, Churchill Avenue. Mr. E. Stidworthy, builder, Newland Road.

Seven houses, Kingsland Avenue, for Mr. H. Davies.

Two houses, Queensland Avenue, for Messrs. Osborne & Co.

House, Belvedere Road, for Mr. J. L. Aldridge.

Four lock-up shops, Holbrook Lane, for Mr. A. Day.

Nuneaton.—Proposed eighty-three houses, Bath and Stockingford Roads, for the Corporation.

WESTMORLAND.

Windermere.—Parish church: proposed war memorial north chapel (£2,000).

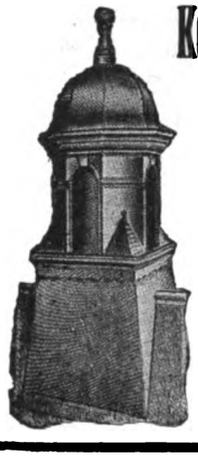
WORCESTERSHIRE.

Cookley.—Canteen, for the Steel Stampings Co.

WALES.

Llandudno.—The "Clarence" Hotel: alterations for the Liverpool Victoria Friendly Society.

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SCOTLAND.

Arbroath.—No. 40 Keptie Street: alterations for Mr. G. Buxton.

Dundee—Ashcliffe House: proposed isolation block (£3,000).

Paisley.—Institution for munitions workers, Moss Street, for the Y.W.C.A. (£1,200).

Glasgow.—No. 6 Park Gardens: alteration as a nursing home, for Miss I. Taylor.

Works, Greenfield Street, Shettleston: alterations for the North British Bottle Manufacturing Co., Ltd.

IRELAND.

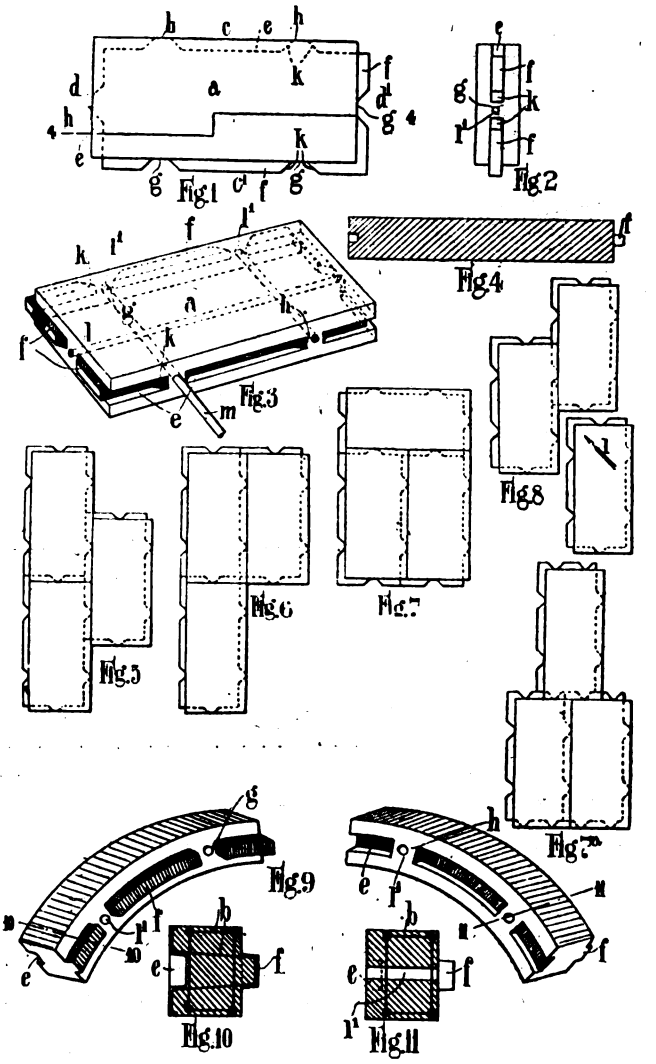
Killeagh.—Proposed Carnegie Library.

BRITISH PATENT SPECIFICATION.

Selected by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the completed specification.

No. 102,805 (13,119, Sept. 15, 1916).—Concrete Slabs or Blocks, more particularly for use in building up structures or the parts thereof.—D. G. Somerville and D. G. Somerville & Co., Ltd., 120 Victoria Street, Westminster, S.W., Engineers.—This invention relates to concrete slabs or blocks which interfit at their edges to prevent them moving relatively to one another both in a longitudinal and transverse direction. The invention consists in a reinforced concrete block or slab, one side and one end of which are longitudinally grooved and the other side and end of which are longitudinally ribbed, the ribbing being interrupted by recesses and the grooving by bridging pieces both ending flush with the body part of the slab. It also consists in a reinforced concrete block or slab of curved form, one of the longitudinal flat faces of which is grooved from end to end, whilst the other is ribbed from end to end, and transverse orifices passing through the slab to receive tie rods. Fig. 1 is a plan view of one form of slab. Fig. 2 is a side view. Fig. 3 is a view in perspective. Fig. 4 is a section taken on the line 4-4. Fig. 1, figs. 5, 6, 7 and 7*a* are plan views showing various arrangements of slabs relatively to one another. Fig. 8 is a detail. Fig. 9 is a perspective view of two curved slabs, and figs. 10 and 11 are cross-sections taken on lines 10-10 and 11-11 respectively of fig. 9, showing a suitable metallic reinforcement *b*. In a flat slab, suitable for forming ceilings, flooring or walling, the slab *a* is formed of concrete in which a suitable metallic reinforcement is embedded. In one of the sides *c*, and in one or the ends *d*, grooves *e* are formed, whilst on the other side c^1, and on the other end d^1, ribs *f* are constructed. The relative arrangement of the grooves and ribs, it will be seen, is such that on respectively opposite sides a groove in one will be opposite to and correspond with a rib on the other. When fitting a number of blocks or slabs together, the ribbing *f* on one will engage the grooving *e* in the adjacent face of another block or slab and *vice versa*, and to prevent any sliding movement between the adjacent faces, the ribbing is interrupted at the parts *g* and the grooving is filled in by bridging pieces *h* to constitute keys or interlocking means. In the arrangement shown in fig. 1, the grooving and the ribbing on the sides are interrupted at two places in order that the adjacent slab may register therewith in one of two relative positions, viz., the two slabs may break joint, that is to say be staggered, as in fig. 5, or may be in alignment or non-staggered, as in fig. 6. Although it is not usually required, the same adaptability may be realised by two adjacent ends if so desired by duplicating the key-like portions as at the sides, as shown in fig. 7*a*. The grooving and the ribbing may be omitted at the ends and in such a case the key portions may be left square, as in fig. 9. The corners of the key portions should be splayed when the slabs are to interlock in two directions at right angles. The splayed corners *k* facilitate the fitting together of the slabs where one is to be fitted into a corner as in fig. 8. The slab to be fitted in may be moved in the direction shown by the arrow *l*. With proper dimensioning three slabs may be arranged as shown in fig. 7 to form an interlocked bonded joint. The slabs may be curved or formed with "flats" (as shown in fig. 9) in order to be built together to form a lining, a circular structure or



rounded corners. Interlocking will occur on the longer sides and not at the ends. Holes l^1 are provided, which extend through the slab as shown in figs. 3 and 11, and through which holes a tie rod *m* may pass, which remains permanently therein, cement grouting being used to fill any clearance between the holes and the rod.—Jan. 3, 1917.

PATENT SPECIFICATIONS.

Selected by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

No. 17,319.—Dec. 9, 1915.—C. R. Belling, Derby Road, Edmonton, N. Electric heaters.

102,805 (13,119, Sept. 15, 1916).—D. G. Somerville and D. G. Somerville & Co., Ltd., 120 Victoria Street, S.W. Concrete slabs or blocks more particularly for use in building up structures or the parts thereof.

102,809 (15,676, Nov. 2, 1916).—William Say, 32 Tower Hill, E. Holing bit for cutting circular holes in wood.

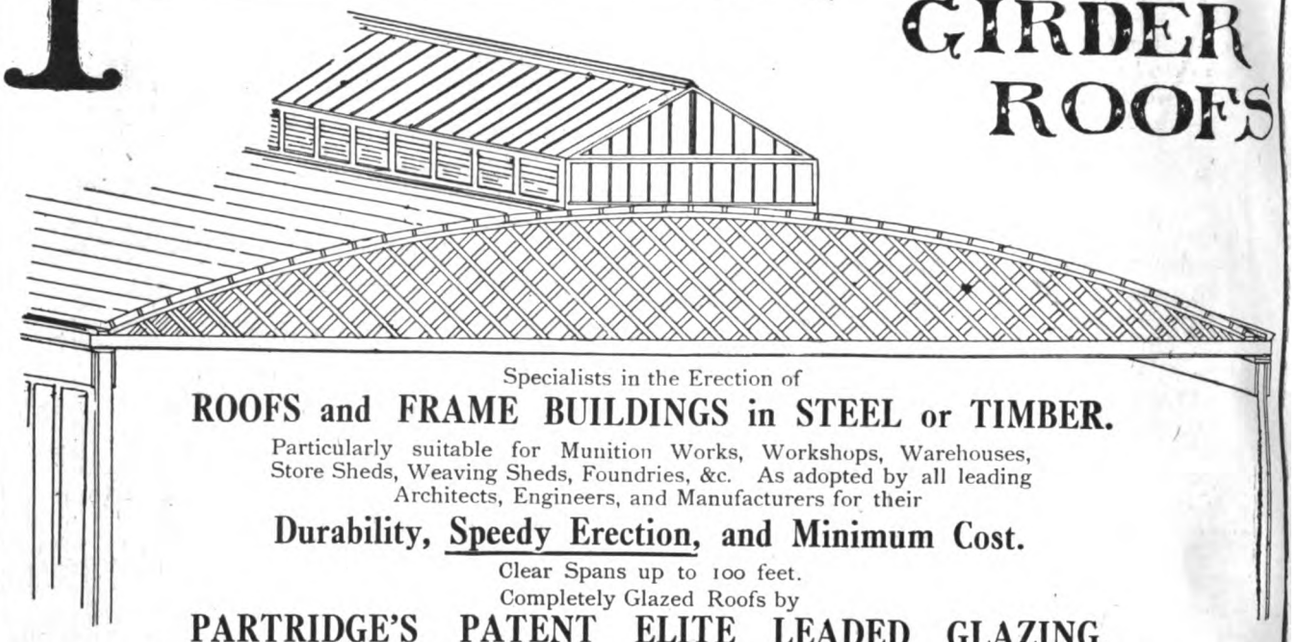
101,476 (12,915, Sept. 12, 1916, dated under International Convention Sept. 13, 1915).—F. J. Paff, Willem van Noorstraat 71, Utrecht, Holland. Flushing apparatus and water waste-preventing cisterns.

102,765 (2,391, Feb. 17, 1916).—A. & J. Main & Co., Ltd., 31 Budge Row, E.C., and J. J. Cameron, Clydesdale Iron Works, Glasgow. Device for preventing the climbing of fences, gates, walls, and the like.

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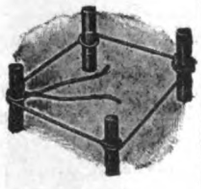
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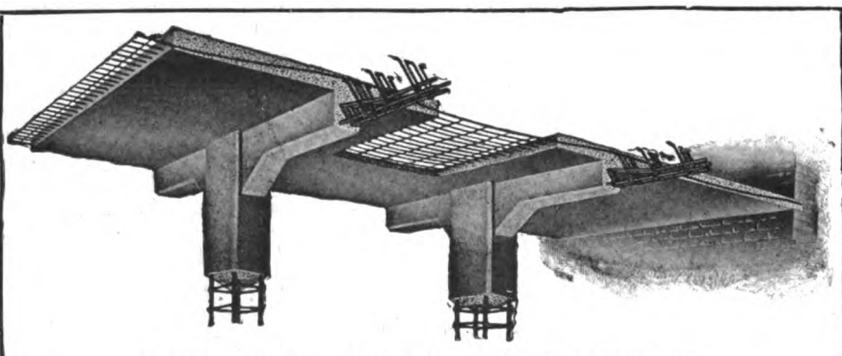
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THE ARCHITECT

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FORTHCOMING EVENTS.

Monday, February 19.

Royal Society of Arts : Cantor Lecture IV. on "Town Planning and Civic Architecture," by Professor A. Beresford Pite, F.R.I.B.A., at 4.30 P.M.

Tuesday, February 20.

Illuminating Engineering Society : Paper entitled "The Effect on the Eye of Varying Degrees of Brightness and Contrast," by Dr. James Kerr, at the House of the Royal Society of Arts, John Street, Adelphi, at 5 P.M.

Wednesday, February 21.

Royal Institute of British Architects : Conference on "Education of the Architect" (continued from February 7), to be opened by Mr. A. E. Richardson, F.R.I.B.A., at 3.30 P.M.

Carpenters' Hall : Lecture entitled "Scottish Houses of Five Centuries," by Mr. Lawrence Weaver, F.S.A., at 7.15 P.M.

Thursday, February 22.

Concrete Institute : Paper entitled "Southampton Docks, Remodelling of an Old Dry Dock," by Mr. Robert N. Sinclair, at 5.30 P.M.

SCIENCE OF COLOUR IN LIGHTING.

INASMUCH as vision practically always connotes colour, it necessarily follows that no consideration of lighting, whether natural or artificial, can be dissociated from a recognition of colour as an element of light. There are three distinct aspects of the scientific study of colour, which, however, have been very differently investigated by scientists—the physical, the physiological, and the psychological. From the point of view of architecture, it is regrettable that it is in this order that attention has been given. Our knowledge of the psychological effect of various colours hardly goes beyond guesswork, and certainly rests upon no satisfactory scientific basis of fact. The physiological influences of colour have been somewhat more widely studied, but even here that which is known is greatly inferior, both in quantity and in quality, to that of which we are as yet ignorant. Yet it is these two aspects of colour-effect that most concern architecture as the art which has for its aim the production of buildings that shall be healthy and pleasant.

For example, it appears to be fairly well established that in the heating of air by incandescent electric lights a purifying action by destruction of microbes takes place; also that certain rays beyond the visible colour spectrum have definite physiological action, whilst even within the visible range it is known that there is a variant chemical action between, say, the blue and the red rays on certain pigments and other substances. But we are still without satisfactory knowledge of the physiological, and yet more of the psychological, action of rays of different wave-length within the visible colour spectrum.

Whilst lamenting the absence of knowledge which we have not yet attained, we need not, however, refrain from cognisance of facts appertaining to colour in its physical aspect which have been elucidated by scientific investigation and which have some bearing on the practice of architecture.

White light occurs when the rays emanating from an incandescent source are of all visible wave-lengths. These, in scientific practice, are measured in terms of ten-thousandths of a centimetre, this unit being usually expressed by the Greek letter μ. The rays to which the eye is sensitive lie between violet and red, respectively about 0.4 μ and 0.7 μ. The eye, in reality, is sensitive somewhat beyond these wave-lengths, but for practical purposes the amount of light-sensation produced by rays beyond these limits is usually negligible.

Ordinary colours which we see in visible objects are produced by selective reflection or transmission. Since most substances do not have the property of reflecting the same proportions of all light-rays received; they are said to be selective in their reflection. A red fabric has the ability to reflect chiefly the red rays of the visible spectrum; therefore, when white light falls upon it, only the red rays are reflected, while the remaining visible rays are absorbed. The same remarks apply to the production of coloured light by selective transmission. A red-coloured glass permits red rays to pass through it, but stops those of other wave-lengths.

It should, however, be noted that colours produced by these means are not as pure as the colours of the spectrum into which the components of white light may be broken up or analysed in the spectroscope. Each of these latter consists practically of a single wave-length and is said to be monochromatic, while the colours ordinarily encountered in nature are impure, consisting of rays of a considerable range of wave-lengths.

The character of the surface of a pigment and the density of the colouring matter influence the appearance of a colour, the purity being enhanced by multiple reflection. In transparent media the depth of the colouring matter affects the colour, so that many media exhibit dichroism—that is, appear of different colour according as the transmitted light passes through a greater or less depth or thickness. Both of these facts have a bearing on the application of colour in lighting.

The spectral character, or colour, of the illuminant has a great influence on the appearance of a coloured object, inasmuch as it influences both the hue and the brightness or value very much. Thus colours of longer wave-length—i.e., at the red end of the spectrum—appear relatively brighter under the artificial light of a vacuum tungsten lamp than in daylight, whilst those at the opposite end—that is, of shorter wave-length—appear relatively brighter under daylight illumination. The spectral character even of daylight varies considerably, so that an object which appears of one colour in noon sunlight will be different in appearance under a blue-sky north light. Relative colour brightness is affected also by intensity of illumination. At a low illumination the visible rays of shorter wave-lengths—that is, approaching violet—appear brighter than red when these are equal at a high illumination.

In the practical application of colour various physiological phenomena of the eye as an instrument of vision demand consideration. The eye, in short, is not a perfect instrument. It is, for one thing, subject to chromatic aberration. It cannot at the same moment focus the blue and the red rays, but may be said to be near-sighted for blue and far-sighted for red. The retinal excitation by which a sense of colour is actuated requires an appreciable time to decay after the stimulus is removed. Hence occur after-images, by which the difference of colours seen in succession is modified by the remainder of the previous excitation. Thus, after stimulating the retina with red light, if the eye be suddenly fixed upon a green

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colour, the latter will appear more intense or saturated in colour for a moment than if the eye had not been previously stimulated by the red light. By simultaneous contrast, also, the appearance of different colours in juxtaposition is greatly modified.

Whilst it has been found by experiment that visual acuity or the ability to distinguish fine detail is increased by the use of a monochromatic light, thus to some extent correcting the natural chromatic aberration of the eye, although at the same time reduction of illumination accompanies the experimental production of monochromatic light by subtraction of other light-rays from the original source, the most fruitful field of scientific study in the application of colour in lighting has resulted from endeavours to produce an artificial daylight.

As the use of colour in art, both in architecture and in painting, is generally intended to be applicable in things to be seen both by daylight and by artificial light, it can readily be understood that artificial daylight, if obtainable, is a paying proposition; hence students of colour in its physical aspect have devoted themselves to this problem.

Daylight character can be obtained from an artificial illuminant either by addition or subtraction. By addition of those rays which are not present in sufficient amounts or by subtraction of those which are in excess, practically the result is a diminution of the intensity of the original lighting source. Hence the recent advances that have been made in the efficiency of artificial illuminants have had potent influence in rendering possible the evolution of lighting closely approximating daylight, both sunlight and blue-sky light.

Those who would desire to go more fully into the various points on which we have touched may be recommended to make a careful perusal of a recently issued book* by Mr. M. Luckiesh, which treats excellently of the present position of the scientific study of colour from the physical aspect, and accordingly deals with many more branches of the subject than we have mentioned. There are, for example, interesting chapters on "Colour effects for the stage and displays," "Colour phenomena in painting," "Colour-matching," and "Colour photography," and even on the, at present, rather nebulous "Art of mobile colour."

ST. GILES', CRIPPLEGATE.

London is fast becoming in one sense a modern city. The old landmarks are one by one disappearing owing to more up-to-date business life. The view here given of the old houses under the shadow of St. Giles' Church, Cripplegate, which were demolished some years ago, may interest the readers of "The Architect."

We stand here on classic ground, full of memories of great men. Of course, the chief interest in the church lies in the fact of its being the burial-place of the poet Milton. He was born in the neighbouring ward of Bread Street, and lived for a short period in Jewin Street, close by. Many a time, surely, must he have passed under the old gateway shown in the sketch. It may not be generally known that Oliver Cromwell and Elizabeth Bourchier were married in the church (1620). Also some may not be aware that Holman Hunt was born in Wood Street hard by, and baptised in the church in 1827. Many other worthies lie buried in the sacred edifice, among whom may be mentioned John Fox, of the "Book of Martyrs" fame, Sir Martin Frobisher, John Speed, the Elizabethan historian, and many others of lesser fame. The landmarks truly disappear, but their monuments remain.

* "Color and its Applications." By M. Luckiesh, Physicist, Nela Research Laboratory, National Lamp Works of General Electric Co. 129 Illustrations. Four Color Plates. (London: Constable & Co., Ltd. 16s. net.)

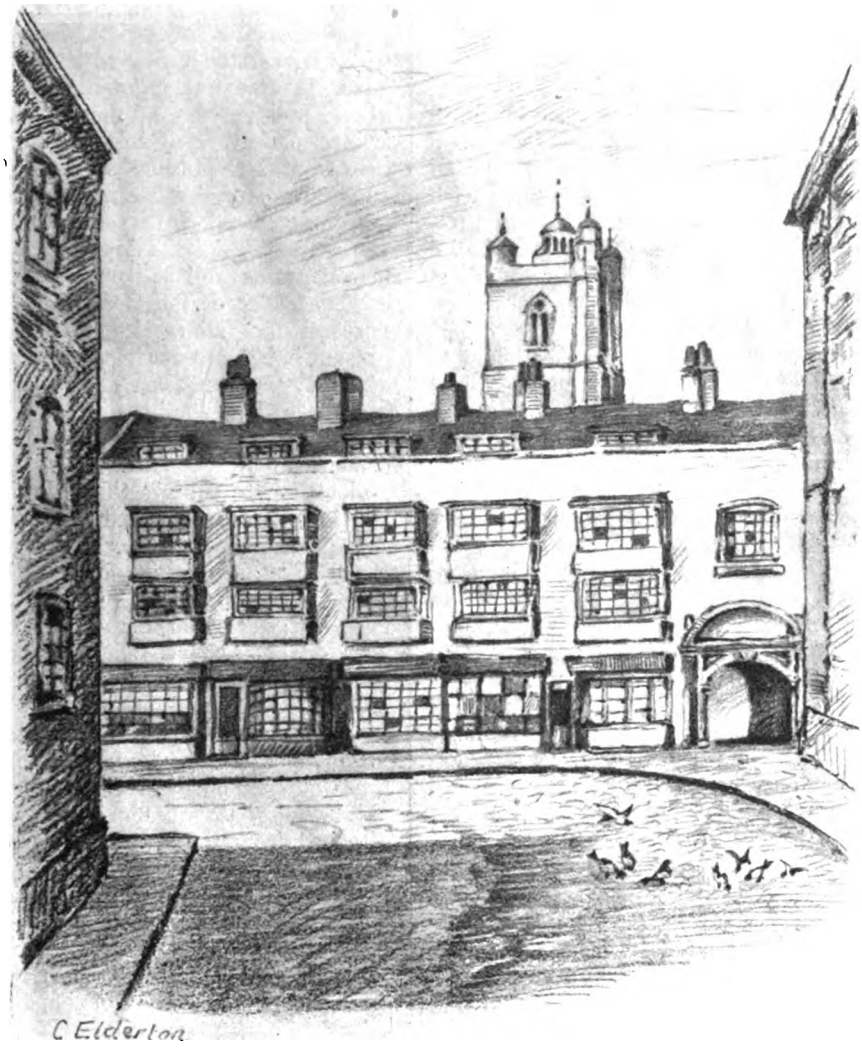
NOTES AND COMMENTS.

We live to-day in such a continuous shower of rules, regulations, orders, statutes, and similar legislative or administrative enactments that it is almost impossible for the man in the street to keep touch of them, and he may inadvertently incur dire penalties for neglect to comply with some ordinance of which the only intimation is a possibly emasculated reference tucked away in some unimportant corner of his daily newspaper. Thus the Registration of Business Names Act, 1916, which the ordinary citizen might suppose from the fragmentary notices of its discussion during the past two years to be intended as a safeguard against aliens in business endeavouring to pose as Britishers, in its final form as it comes into force on February 22, really affects a great many people who carry on business or even professional practice. Many architects, for example, come within the scope of its provisions, and hence a little pamphlet entitled "Registration of Business Names," by Henry W. Jordan, published at sixpence by Jordan & Sons, Ltd., which explains the operation of the Act, should be studied by all who trade under the style of a firm or an assumed name or a changed name.

A wholly commendable suggestion for the establishment of local War Museums is made by Mr. C. Reginald Grundy, the editor of "The Connoisseur," which we trust will be widely, indeed universally, adopted. The magnitude of the present war, in which conflicts that would in the past have been recorded as memorable battles are of almost daily occurrence leads these to receive but the barest mention. Heroic deeds are passed over and overshadowed by their very plenitude. It is only by a multiplication of records that any adequate memory can be preserved of the deeds and their doers that make this war supreme as the greatest contest in the world's history. Let then, says Mr. Grundy, each municipality in which a War Museum is established have all references to local regiments or ships which appear in the Press carefully cut out and collected, illustrations as well as letterpress. When possible the original drawings or photographs from which the illustrations were reproduced should be obtained and either framed or filed for reference. These might be supplemented by maps or plans, on a large scale, of the actions in which the local regiments took part, on which their positions and movements should be clearly indicated, and it should not be impossible to accompany these with views of the locality in which the battles occurred. With such records to aid them, the descendants of John Smith would be able to trace the doings of their ancestor step by step, and realise to the full the perils he encountered and the valour with which he faced them.

So far I have only mentioned what may be described as the literary elements of the naval and military portion of the museum—the description of things, but not the things themselves. It is, perhaps, hardly necessary to expatiate on the latter, for we are all at one in the consciousness that every direct relic of the war is of supreme interest. Yet here again we must be careful that nothing is overlooked, for articles which are so common to-day that we think they are hardly worth caring for may have disappeared in a few years' time. As all collectors know, the valuables of every generation are more or less plentiful because they are instinctively preserved; it is the trifles and things apparently of no account which altogether vanish, and this is the more to be regretted because these little things often throw a more intimate light on the period than the great ones. It is essential, then, that nothing should be overlooked. Illiterate letters from privates at the Front giving an insight into their experiences, in fifty years' time may be rated as more interesting than official dispatches, while regimental newspapers will possess a far greater chance of immortality than more important and ambitious productions. Of course, uniforms, badges, accoutrements, and weapons of all kinds, both those of the enemy and our own, should appear in the collection, and with these should be included articles

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ST. GILES', CRIPPLEGATE.

of attire, which cannot be strictly classified as portions of regimental uniforms, such as trench boots, waders, body shields, gas and ordinary helmets, or sheepskin coats. Interesting trophies from the battlefield should be given an important place; and war medals, instead of being hidden away with art exhibits, should here be awarded their proper position as records of bravery and self-sacrifice. They will be regarded with tenfold more interest because spectators have around them ample materials by which to realise the bravery of the action for which the decoration was awarded.

A museum conceived on these lines would in time attract to itself more precious and intimate relics even than those already mentioned—portraits and busts of distinguished officers, swords carried on the battlefield, flags which had flaunted on the tops of British battleships when they engaged in action with the enemy. It would form at once a local museum, a local portrait gallery and a local Valhalla. And the idea might be extended. It would not be necessary to confine the scope of such a museum to recording the heroism of our own times. We might go backwards. Many of our towns have annals which extend far down the records of British history. Their trained bands took part in the great Civil War; they raised regiments—many of which are still in existence—to meet great national dangers such as the Jacobite Rebellion or the threatened invasion of Napoleon. Their private ships, whether in the guise of merchantmen or privateers, engaged in many a sanguinary conflict with Britain's enemies, and helped to establish the supremacy of her flag at sea. Nor are these proud records confined to the homeland; many of the cities of the great Dominions have, in the past as well as now, sent their sons to fight in the Empire's battle line, and some of them have been the actual scenes of strenuous contests. Where are the chronicles of such things to be found? They must be dived and delved for amidst musty old histories, and many of them are irretrievably lost. In a War Museum such relics of our heroic past as still remain might be collected and arranged to accompany the more complete record of our heroic present. There are hundreds of old uniforms and acoutrements—regular, militia, volunteer, and yeomanry—stored away in lumber-rooms and wardrobes which, were it known that there was a fitting place to receive them, might be had almost for the asking. Other and more vital relics would be forthcoming, until each museum might become an epitome of local patriotism and heroism.

It would be no small thing to accomplish this; to bring home to the people of every locality, however obscure, that they and their ancestors have played their part in the making of Britain and her Empire, and that their share in her greatness and the glory of her achievements ennobles them and gives them a cause of higher pride than the possession of either rank or riches can bestow.

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At a recent weekly meeting of the Council of the Dublin Industrial Development Association the President, Major Crean, announced the satisfactory result of the interview which the Joint Committee of the Royal Institute of the Architects of Ireland and the Dublin Industrial Development Association had with Mr. T. P. Gill, Secretary Department of Agriculture and Technical Instruction, in reference to an exhibition of Irish building materials, in which the help of the Department of Agriculture was sought. There is undoubtedly a wealth of valuable building material in Ireland which has, up to the present, been insufficiently exploited, and such an exhibition as that proposed would do good service in an endeavour to promote the more general use of Irish materials and the employment of Irish artists and craftsmen in the construction and decoration of buildings, and also to bring more closely into touch architects, builders, and building owners, on the one hand, and quarry owners, manufacturers, artists, and craftsmen on the other. Some few years ago, for example, we had occasion to look into the question of Irish marbles, and we found that there exists a quite remarkable range of beautiful varieties that only need to be handled in a business-like manner to open up a very wide employment.

In the February issue of "Fire" there is a detailed account of the explosion in East London on January 19. It is stated that the total amount of property damaged is estimated to exceed a million pounds, but "will not reach more than one-tenth of the value a preliminary inspection of the area involved might lead one to anticipate."

"The building in which the explosion occurred," continues the report, "disappeared, and an immense crater, 100 feet by 33 feet by 15 feet, has been formed, the displaced earth having been apparently mostly forced into the sides of the crater, causing a miniature seismic wave and buckling upward the roadway above. The chemical factory otherwise has merely collapsed, and little fire seems to have occurred amongst the débris here. The factory buildings which collapsed on other properties were fired by electric shorts, gas leaks, flaming brands of débris, débris friction, dismantled forges, broken boiler furnaces, &c. The triumph of ferro-concrete construction is the most striking feature of the catastrophe. Not only have such structures within the explosion area withstood the effect of the air-wave, but they came through the ordeal of fire successfully. The metallic rods and laths within the concrete enabled the buildings to give slightly to the air-wave when it struck the buildings; the windows caved in. The reverberating air entered, and, expanding, passed through the opposite windows, thereby helping to straighten up the main structure again, although fire was left behind. The fractures in the structures are only where the fires were fiercest, due to the nature of the contents. Brick structures collapsed ignominiously, being pulled inward by the floor and roof joists and girders. But brick chimney stacks, because they have no upper strain, without exception exist practically undamaged, having been able to give slightly to the force of the air-wave and then spring back to perpendicularity."

The report continues: "The roofs of buildings, including dwelling-houses, were lifted by the excess internal air-pressure set up by the air-blast passing in through windows and doorways. Not all the 100,000 windows broken were blown in; many were blown out by the advance wave entering open doors and creating a preliminary high internal pressure, sufficient to burst out some windows before the main blast arrived and blew in the remaining windows. Some of the houses nearest the scene of the explosion had also burst-in walls, but further away the houses showing structural damage other than by flying débris suffered from burst-out walls."

The following circular letter has been issued by the War Office to timber merchants, and the announcement is made that dealings in soft wood may be resumed forthwith, subject to the conditions laid down:—

War Office, London, S.W.

Gentlemen,—I am directed to refer to the communiqué published in the Press on the 6th instant, and to state that the Army Council has assumed control of all stocks of soft wood, planed and unplaned, excluding pitprops, in the United Kingdom. It has been necessary to take this step owing to the urgent necessity of safeguarding essential supplies of timber for military purposes, and in view of the growing scarcity of tonnage it is imperative that existing stocks of wood should be conserved to the utmost and that no wood should be consumed for any purpose not essential or where any substitute for wood can be utilised. To this end the War Department asks the loyal co-operation of all timber merchants as well as consumers of timber.

The effect of the Order is to give the Department possession of all stocks of such wood and to require present holders to act in accordance with the instructions of the Department in regard to the custody and disposal of the stocks under their control. I am therefore to require you, pending further regulations which will be drawn up in consultation with the Timber Trades' Federation, to observe the following conditions:—

(1) You are permitted to continue to make deliveries until further notice under existing contracts.

(2) You are permitted to sell lots of under one standard at your discretion provided that the price does not exceed that current for similar transactions during the week ended January 31, 1917, and provided that you are satisfied that the wood is required for urgent civilian needs.

(3) You are permitted to enter into fresh contracts for one or more standards for sale at prices not exceeding those current during the week ending January 31, provided—(*a*) that you obtain a certificate in the form attached from the intending purchaser; and (*b*) that in regard to wood for other than Government purposes that you are satisfied that the wood is actually required for work of national importance. In cases of doubt you should refer to the Director of Army Contracts at Imperial House, Tothill Street, S.W.

(4) Holders of wood of the above description are permitted to use in connection with their own business such quantity as they now hold, but not to dispose of such stocks except in accordance with the above conditions.

(5) You will keep records of all transactions in such wood as from this date, which shall be open to inspection by any officer of the Department or by any person authorised for the purpose.

(6) Applications for licences to buy and sell and to offer to buy and sell soft wood, excluding pitprops not in stock in the United Kingdom, should be addressed to the Director of Army Contracts, at Imperial House, Tothill Street, S.W.

The Department feels confident that it may rely upon you to act loyally in the national interest and to co-operate in carrying out such measures of control of the distribution and consumption of wood as may be decided to be necessary.—I am, Sir, your obedient servant,

A. F. WINTOUR, Director of Army Contracts.

The form of certificate sets forth that the timber specified is required either for a Government contract or for work of national importance. The latter may provisionally be taken to include:—

(1) Work undertaken by private persons or bodies which is directly or indirectly on behalf of a Government Department, or work which has been recognised as necessary by a Government Department.

(2) Urgent repairs to public or private buildings or streets where necessary for the health or safety of the public.

(3) Packing cases to contain goods for export.

(4) Packing cases or other wood required for the supply or distribution of food and other articles essential to the needs (as opposed to luxuries) of the population.

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UNIV. OF CALIFORNIA

ILLUSTRATIONS.

FONT, NAVE, AND PORCH, ST. NINIAN'S CHURCH, TROON.

THE nave of the church was finished in 1912, and the chancel and large western tower still remain to be added. The stone used throughout is red Ballochmyle sandstone, in square-dressed rubble on the external and rubble coursers on the internal walls; the doorways, arches, and windows being tooled. The roof is covered with red tiles and a red sandstone ridge. The roof framing is of kauri pine in heavy scantlings, and, as there are no buttresses on the nave side walls, the weight and thrust are partly carried to the ground by supporting posts placed against the walls. In the photograph the chancel window shown is wood-framed and is only temporary, as is also the wood chancel screen within the nave. The font, placed near the west wall of the nave, is of Pavonazzo, with an inscription in lead letters on the steps. It is the gift of Joseph Harling Turner, Esq., the Duke of Portland's agent in Scotland; and the oak lych-gate and boundary fence are the gift of his Grace to the church. The porch, which has a stone bench inside, is of Ballochmyle stone, but the outer arch and sparred gable framing are of oak, and behind the sparred gable is an inner framed oak and plaster gable in line with the wall. The floor is of Arbroath stone of irregular sizes, the nave aisle and font surround being of large-size red tiles of local make. The architect is Mr. James A. Morris, A.R.S.A.

THE STEEKIT YETTS O' AULD TRAQUAIR.

THE SALUTE, VENICE.

THE original lithographs from which our illustrations are reproduced are hung in the exhibition of the Senefelder Club at the Leicester Galleries, and reference thereto will be found in our notes on Art in London.

EDUCATION OF THE ARCHITECT.

THE second of the informal conferences arranged by the Royal Institute of British Architects took place on Wednesday, the 7th inst., at Conduit Street, W. The subject for discussion was "Education of the Architect," and Mr. Reginald Blomfield, R.A., took the chair.

Mr. Blomfield, as chairman, in opening the conference described the subject they were about to discuss as one of the most important in the world. It was being closely considered at the present time. In 1904 he drafted a report on architectural education after consulting with many members, and it was adopted by the Institute. He believed he was right in saying that the high level among the rising generation of architects was due to their training on those lines. The younger men were now very much better trained than they used to be in his time, when students had to find out things as best they could. Of course, it is necessary to keep abreast of ever-changing conditions. There was only one caution he would give, and it was that though modern construction has made enormous strides in recent years, there was no need when they moved forward to burn their boats and turn their backs on what had been acquired by a great many generations of architects. They had to supplement it by more thorough scientific training. Students must get a grip of the new methods on the lines laid down some years ago.

Mr. Robert Atkinson, F.R.I.B.A. (headmaster of the Architectural Association Day School), in introducing the discussion, said he looked upon architecture as an art of the future, not of the past alone. We are confronted with problems daily, such, for instance, as aeroplanes; temporary sheds house them at present; in the near future they will need permanent buildings and landing-places perhaps in cities. An architect should be prepared for such steps in progress. By his training he should be able to foresee or anticipate developments; they do not come without warning, they are purely evolution, their trend is already settled, they need only courage and spirit for their solution; but our ancestors were in a similar case, and they produced the beautiful solutions which we spend our lives in worshipping and copying, a spirit to be admired, but an almost useless exercise. We are richer in knowledge than our ancestors, richer in materials, and in money: are we, then, deficient in courage, in enterprise, and in taste? How often do we see our modern materials used courageously and properly? What would not our worshipful ancestors have given for our steel, ferro-concrete, glass, asphalte, asbestos, and our hundreds of new materials?

Evolution has progressed recently by the square of its former progress, with what result? Since the introduction of steel, tradition, which once kept pace with progress, has been hopelessly outpaced. What a pathetic breakdown was then witnessed. The engineer passed the plodding, conservative, hidebound architect on the wings of the wind. The engineer showed his naked steel, the architect persisted in hiding it—it was not a traditional material. Palladio or Batty Langley were searched in vain; what could one do with these attenuated proportions? Result, chaos. Since that day the architect has never kept pace with his materials; he periodically puts on a spurt to find that the materials he has just conquered are superseded by new, and, like the dog tied behind the express train, prays for a collision.

A partial solution of all these problems lies in the training of the architect; unfortunately, were we to begin to-morrow it will still be five or ten years before the result is apparent. By training he meant, of course, the beginning of training, but the beginning is the part that matters; the first impressions, the glimmering outlook must be the corner-stone if years and perhaps lifetimes are to be saved. It is important to settle in definite terms for the master's guidance an outlook of the broadest possible character, and arrange programmes of education which can immediately be put into force, not narrow-minded courses, but courses open to temperament and capable of constant improvement. Elimination of unessentials is the first step in our progress; this sounds simple enough, but in practice may be difficult, because here taste plays a part, and taste is an abstract subject shaded according to the individual; but generally a majority of opinion can be secured which will point the proper way. Then there is the temperament of the individual student, each needs separate treatment; all the traits of human character need studying by the master; he will encourage the shy and exercise severity or even elimination where necessary. Then there is the question of origination of the machinery of education, a gradual sifting of elements and the provision of higher stages for those who attain to the higher flights. Obviously the higher the grade the fewer the numbers, and, of course, the magnet or culmination should be in London.

Who is to provide these facilities?

To begin with, architectural education should be precious and not sold in the market place to all comers; only those schools which can maintain twenty to thirty students should be tolerated. Assuming a three years' day-school course, ten students in each year, or thirty in all, would provide the necessary competition and liveliness. It is one of the essentials and advantages of a school that students may see by their side a dozen other men working on the same problems; he gauges his standard of progress thereby and works accordingly. He also sees a dozen possible or impossible solutions; he sees perhaps all the possible and impossible solutions, and learns a dozen lessons on each subject.

Beyond these schools should be provided that which at present is not—further stages as the student advances. These would be the summit of the pyramid, organised in London only (for the present) and organised by the Institute itself. From the body of the Institute could be easily selected the officers necessary.

Again, in these advanced studies we need competition, a series of five or six consecutive studios, each with twenty or thirty students, part or whole time, each under the directorship of eminent architects, each student of each

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studio ready to swear by his director's advice, jealous of his studio's success and reputation, and willing to work for the good of his studio, if he is careless of his own, each student helped by his fellows and by his director. All these studios working on one programme, judged periodically by the collective directors, criticised and placed according to their logical solutions of the programme, an award perhaps of laurel leaves for the winner, a sufficient reward—the esteem of his fellows.

Reverting to the details of education, Mr. Atkinson said he disagreed entirely with many of the present methods of teaching—the system of dividing into water-tight styles, the divorce of historical architecture and construction. By such methods a student is accustomed to look upon the styles as separate periods beginning at a given date and stopping at a given date, as if history is like turning on and off a tap.

Historical architecture is part of the life of the period, the influence of daily habits, of the capacity or intellect, of the materials in use, of the methods of construction; the influence of all these things on the architectural teaching should show whether the architecture (design) is deliberate or dictated by the materials or habits of life. These are of more importance than a string of names, of dates, of dimensions, like a glorified Bædeker. Of what use is it to know all these things without being able to analyse them. To pick out those that are useful and those that are not, to apply the result to modern problems, this essence of analysis is the faculty which will tend to solve our modern difficulties. With planning it is the same thing; we do not study ancient planning for its dimensions, we wish to learn to analyse. Then again follows the grouping of separate buildings, their connection, the domination of the more important, their approaches and the study of the points from which they will be viewed, the deliberate confining of spectators by walls or obstructions to the vicinity of the points of view desired.

Again with historical construction, how can this be forcibly extracted from its setting, set down in text-books as average diagrams, copied faithfully by students, and advanced as evidence of knowledge? Very little of historical construction, except, perhaps, masonry and brickwork, applies to modern construction (domestic buildings excluded). All but the more simple part of it is obsolete. Who ever uses queen post roof trusses? Why not, then, teach historical architecture and construction as one subject, and begin modern construction on the foundation thus provided?

Let expression be a part of our modern construction; let the use of the building, be it library or warehouse, be expressed by its appearance and its materials. Why should a steel-framed or ferro-concrete building be clothed like an Italian palace or a Roman temple, simulating ponderosity on a slender framework? Why waste the client's money and floor space?

Why not live the life of the occupant for a few days and learn what he considers a good building for his business? These business men are as clever in their own line as the architect in his. The architect always has a tendency to lock himself up with his books when he prepares his design. He always has a preconceived notion at the back of his head which he must work off on the first-comer, a result of poverty of ideas and lack of logical education. Heating, for instance, is not satisfactory, nor is lighting—*i.e.*, the methods of defining the light; we still copy candles because we cannot produce decent electric fittings: inverted lighting is certainly an improvement, but we worship at the shrine of the past too much; we are not sufficiently materialistic; we should use the past as a step for the future, not look upon it as an unattainable level and say that the next best thing is to copy it blindly. The past was not produced by such methods. Books are certainly the foundation of an architect's knowledge, but they must be used not worshipped.

Draughtsmanship is certainly a great help to the architect. It is easier to visualise a building from a good drawing than a bad one, and when not abused the projection of shadows and rendering is invaluable in finding the correct massing of parts and the correct weight and projection of ornaments. The best perspective hand is usually the most prolific designer and the best at the handling of masses, his faculty of "seeing all round" being more highly developed than that of his fellows.

With regard to the examinations, if the Institute were more directly connected and interested in education on the lines sketched the examinations would be a truer test of value. All architects cannot climb to these dizzy heights, and the plodding person is the backbone of the profession. For that reason it would be a great injustice to raise the standard of the examinations to too high a level. It would be better to award post-graduate diplomas for, say, design, town-planning, scientific research, or specialised subjects; these would tend to the continuation of studies in the particular line of each student and get rid of the idea now prevalent that once the final is passed the goal is reached.

Combination in business, too, might be encouraged more than it is; very often a particular person's lack of success is his lack of business ability or some one-sided reason. Why not, asked Mr. Atkinson, in conclusion, as in America, have three or four partners, each a specialist in his own line?

Mr. H. Davies (of the Board of Education) said he was officially responsible for the inspection of all types of architectural and building classes organised by the Board of Education throughout the country. There were about 300 such schools where building subjects were taught—and architecture was taught in a very large number of them. In these one comes across cases of architectural students working alongside those who are studying other aspects of building. He believed Mr. Atkinson had indicated broadly how an excellent system of architectural education might be established. In large towns it would be easy to do this; but, without scholarships or arrangements for residence, the large number of students in smaller towns would not be touched. In going round the existing classes he had been very much concerned at the inadequacy in very many cases of the scientific teaching. That fact had exercised the Board of Education very considerably. Within the last few years the Board has taken up the idea of having building laboratories in technical schools—as at Brixton and half a dozen towns. The same idea was being exemplified by Mr. Munby. The idea is to admit to it only those studying science as applied to architecture and the properties of materials. He had been struck with the very inefficient manner in which the latter subject was handled under the old conditions, which resulted in hopelessly mixing the students and most extraordinary answers in examination. In the building laboratories students should specially study local materials by handling and testing them. He would like to feel they were places where a local architect might take at least some materials for investigation instead of sending to an expert. On somewhat similar lines the Concrete Institute is taking steps to carry out an investigation into the local aggregates of various centres. If these laboratories were generally established architects would be in a position to employ local materials instead of importing from a long distance. Pretty full instructions as to the use of these laboratories have been drawn up: the practice is to separate all students into categories according to their occupations, and when they reach a certain stage to treat the occupations independently. Hitherto students have been bunched too much together and kept at things they do not want to know.

Professor S. D. Adshead suggested the meeting was in danger of forgetting that architecture was a Fine Art. In his opinion the Kalendar was a little out of date in its section dealing with architectural education, and it embodied a dangerous doctrine in declaring that training "should be governed by the principle that construction is the basis of architecture." Architecture is the medium of emotional expression, and suggests phases of human thought. Construction was nothing more to architecture than paper and pencil are to a draughtsman. At the out-

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set of a student's career he should be taught that architure is a Fine Art.

Sir J. J. Burnet considered the big question of whether architecture was an art or a craft ought to be eliminated from the discussion.

Mr. Gerald Horsley read part of a report descriptive of the training at the Ecole des Beaux-Arts.

Professor W. R. Lethaby said he thought it was false to set up an opposition between science and art. Science in application was an art. The knowledge preliminary to laying out a great bridge was science; but the realisation of it was art. He would make the teaching of architecture wholly scientific—not necessarily to include sciences like geology, but to arrive at the real science of building. The only thing that can be properly taught is science. That fact does not waive the question of genius or temperament.

Mr. F. Roscoe (Secretary of the Teachers' Registration Council) argued that it was possible to work back from art to a science, but never from science to an art. Science was organised knowledge worked backward from art. The radical defect of all education is that it is tending to attach too much importance to the grammar of the subjects and too little to the subjects themselves. The inquisitive boy after being educated becomes a dull, blinkered creature. You may give a pupil all the science, the ordered knowledge underlying his craft, but unless he is allowed to derive inspiration from the practice of his craft he is not going to be satisfactory. It is unfortunate that science is easier to examine in than art. To his mind the former was strictly subordinate to everything, and its value limited to its applicability to the purpose involved.

Sir J. J. Burnet spoke of his experiences when studying at the Beaux-Arts and of the influence of the teaching of science there.

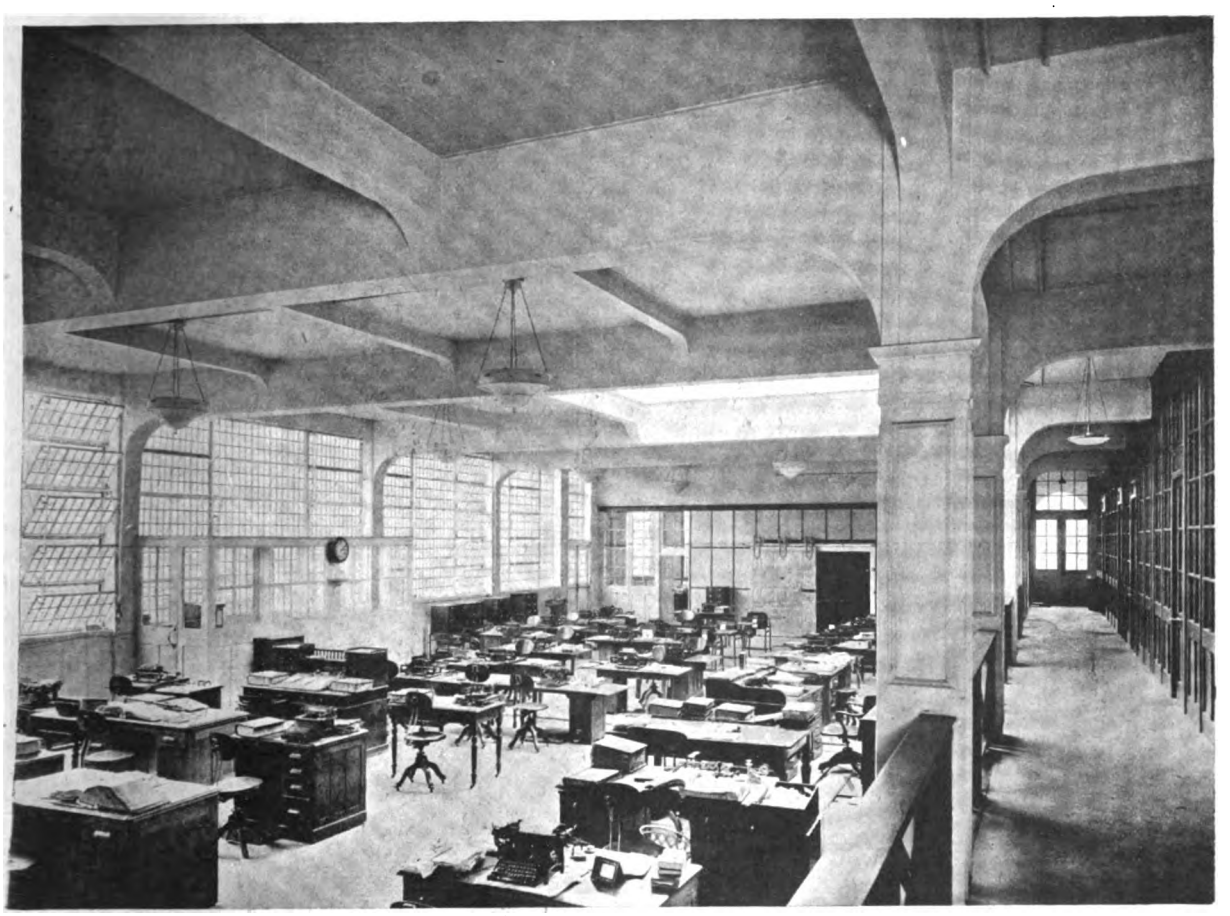
Mr. A. E. Richardson and Mr. Alan Munby having contributed to the discussion, the conference was adjourned to February 21.

THE DESIGN AND CONSTRUCTION OF INDUSTRIAL PREMISES.

By A. ALBAN H. SCOTT, Vice-President, Society of Architects, &c.

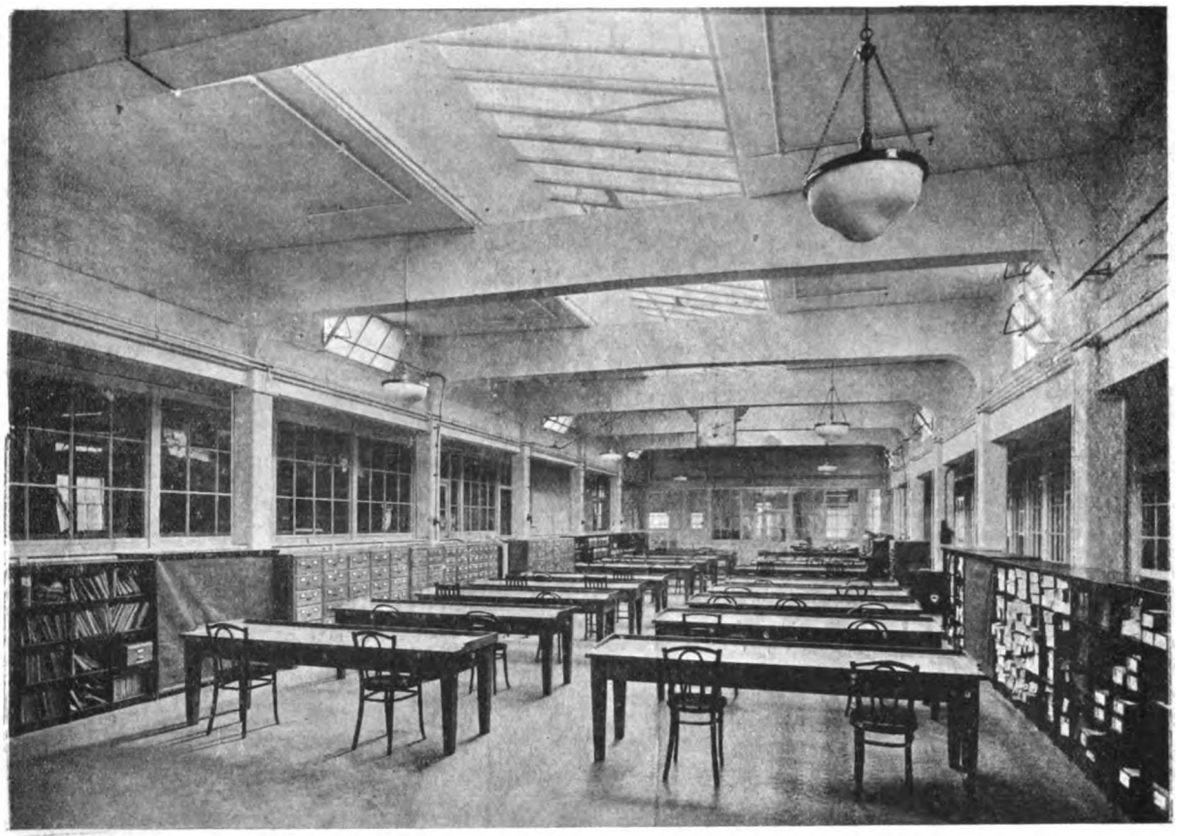
(Continued from last week.)

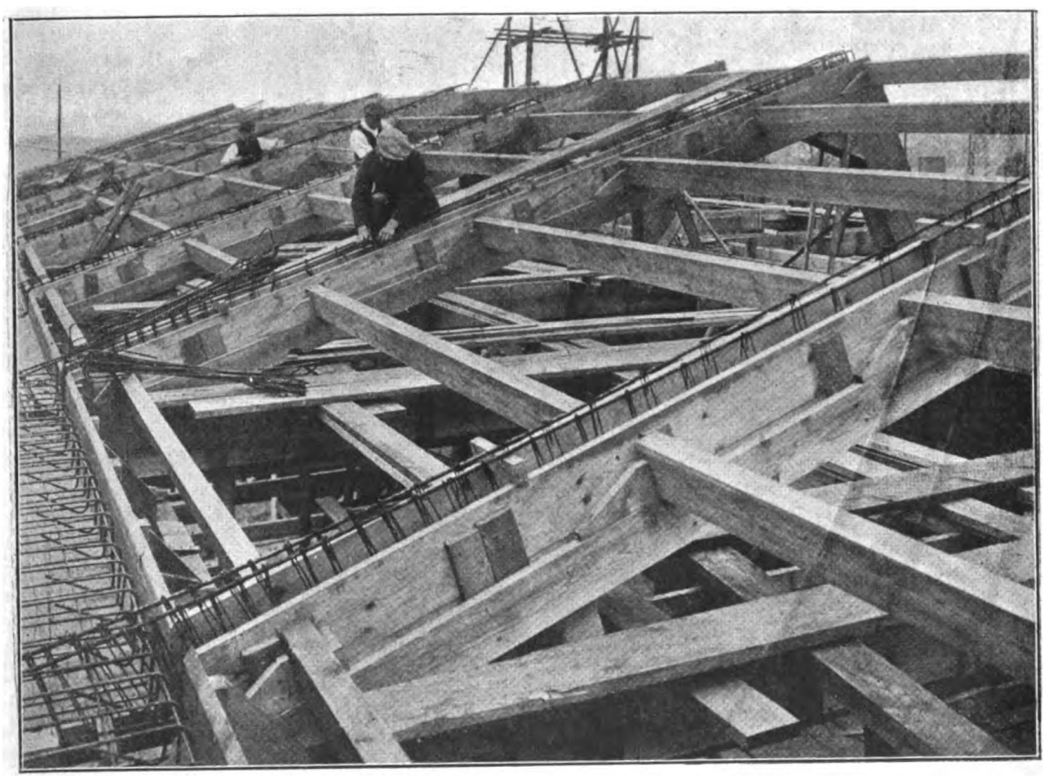
ONE of the most important points is the question of the levels of the site, a site purchased for a low figure may eventually prove to be a most costly one. For each piece of land of 200 feet by 200 feet the cost of levelling and extra foundations for each foot in rise would come out to an additional cost in the building works (which should be charged to the site) of about £250, which amounts to a large proportion of the site value, and the question of reasonable foundations is another factor which is often overlooked. A building came under my notice only a short time ago where the foundations for the building alone cost £12,000, and the superstructure £30,000. Assuming that normal foundations would cost under £1,000 the site value was at once increased by about £11,000. (It would be interesting to know if this point is considered in valuing site values for Form 4.) Generally speaking the selection of sites is governed by very definite points although they frequently allow a fair amount of freedom. For country works the question of available local building materials should not be overlooked. There is one point which is often unfortunately missed, that is, the development of the local materials—surely the time is coming when bricks will not be brought from one end of the country to the other when there is an abundance of local clay or sand, also why not turn chalk to use for buildings where there are thousands of tons actually on the site? With some scientific research clay and chalk should also be capable of some local treatment to make them useable for permanent building work. Why not treat these two materials and use them



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together for roof coverings over roof boarding? Many say that this will not be possible for many years, for have they not tried portable plant for making sand lime bricks and not succeeded? But is this not owing to the absence of proper scientific research? Fortunately, however, we have now one building material which can often be





used in conjunction with local materials, that is reinforced concrete.* For any reasonable sized work a washing and crushing plant can be put down for treating the rock or ballast and sand obtained *if not actually* on the site in the locality—this material representing in normal times a very large percentage of the total cost. This brings us on to the question of maintenance of buildings, and the cost of maintenance of large industrial premises is of serious moment, and the choice of material requires careful attention particularly for those parts where heavy wear and tear is anticipated. In reinforced concrete no maintenance is required.

Roofs are generally one of the large items, and I have found that mineral rock asphalte is about the only material which gives a good roof covering, upon which there is practically no maintenance; it must, however,

* See "Reinforced Concrete in Practice," by A. Alban H. Scott.

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have a properly prepared foundation, such as felt and expanded metal if laid on boarding, both to gutters and slopes of roofs, and it is also desirable to lay it on the same foundation to slopes on other materials such as reinforced concrete, &c. Mineral rock asphalte requires no yearly treatment, such as some of the sheet roofing, and it can be walked upon without damage accruing. It should be remembered that mineral rock asphalte is fairly heavy, being about thirteen pounds per foot super for every one inch in thickness, the usual thickness for roofs being three-quarters of an inch laid in two layers, which would give a weight on the roof of about nine and three-quarter pounds per foot super.

Floors are perhaps the most difficult of all points to settle, both as to the original cost and cost of maintenance. Floors formed of concrete and only spade finished are totally unsuitable—some applied paving over the concrete must be laid, and of these there is a vast field to choose from, but a few might be mentioned, together with their approximate cost for a shop having an area of 60,000 feet super, all these materials being laid in situ.

Cement Paving (Cement and Sand)	£700
Metallic Paving (Steel Slag and Cement)	850
Granolithic Paving (Granite Chips and ditto	850
Fir Boarding laid on battens	1,650
Pitch Pine Boarding	1,800
Blue Brick Paving	1,800
Maple Boarding	2,000
¾-inch Mineral Rock Asphalte	2,200
Patent Jointless Flooring	2,333
Wood Blocks in Maple	3,000
Wood Blocks 3-inch Deal creosoted	3,900
Wood Blocks in Oak	4,100

Each of these pavings have their own advantages and disadvantages and each particular building must be considered separately.

It should be pointed out here that these different pavings have a material effect upon the cost per foot cube. For instance, if shops of the same dimensions were taken the difference in cost per foot cube, between the metallic paving and the wood deal blocks would be 0.64 of a penny, which is a large proportion, as shops of this description would only cost about 2.20 pence before the war. The cost is given here on the cubic foot, but as mentioned later the use of this unit is not necessarily the most convenient for reducing building costs. Considering the cost of floors leads us on to the question of one floor buildings as compared to storey buildings. Without exception, I have found that even taking into consideration the value of land up to £2,000 per acre and extra works roadways, &c., required, the cost of one storey building is cheaper per foot super of floor area and very much cheaper per foot cube than a storey building having the same floor area.

(To be concluded.)

MONUMENTAL MEMORIALS AND TOWN PLANNING.*

By PROFESSOR S. D. ADSHEAD, M.A., F.R.I.B.A.

THE public interest in town planning is every day increasing, the effect of its application is becoming better understood, and its scope is constantly widening. It takes the specialised knowledge of architects, engineers and surveyors to deal with it even in its most obvious phases, but adequately to deal with its side issues there are needed the services of lawyers, economists, sculptors, doctors, and others.

But there is an aspect of town planning which may be described as the art of setting monumental architecture, and monumental memorials may be described as the jewels of a monumental town plan.

Whilst the title of my paper leaves me with sufficient latitude to deal with every kind of memorial that is likely to occur in the embellishment of a town, including buildings of a monumental character, it is obvious that the monumental memorials that are of greatest interest to us at the moment are war memorials, and therefore it is with the design and setting of war memorials that we can most profitably direct our attention to-night.

It is natural that one whose particular interests are town planning should dwell at greatest length on their use and setting, but before doing this it is necessary to consider at some length their especial character and purpose. In all humility we shall therefore, in the first instance, invade that territory which, strictly speaking, is the rightful preserve of the sculptor. From the remotest ages it has been the custom of man to memorialise by symbolic representation in ivory, bronze and stone, epoch-making events. It is to the utilitarian patriots of last century that must be credited the discovery that a memorial could take the form of a hospital or similar useful institution. I have heard of a small Urban Council who, with an eye to thrift and economy, decided to commemorate the Jubilee of Queen Victoria by the construction of a new public sewer. Needless to say, it is not with such memorials that I am concerned.

It is generally assumed that the purpose of the war memorial is to celebrate victory, and whilst this is so as regards most memorials that would come under this head, it must be remembered that there are some which it would be more correct to describe as monuments to peace. As to whether the patriotic spirit of a nation is extravagantly fostered by its indulgence in the erection of monuments commemorating victory, and as to whether excessive indulgence in this direction embitters rather than obliterates that feeling of wounded pride which must in some measure lurk in the heart of the vanquished, are questions which involve an inquiry not only into the sentiment and purpose of the monument, but also into the ambitions, aspirations and good taste of the nation that inspires its design.

War memorials have been erected with various ends in view, both for the purpose of inspiring noble action and also, it must regretfully be admitted, for inspiring demoniacal deeds. But the finest type of memorial is that which, whilst arousing the best sort of patriotism, at the same time holds no sting, innuendo or cruel insinuation either in the volubility of its sculpture or in its massive outline. How far from this ideal are those German monstrosities of post-Bismarckian days! They are the symbols of frightfulness, arrogance and brutality, and a menace to the independence of man. How different from the typical French memorial erected at the same time, which simply presents the triumph of victory over death, and the endurance of undaunted will!

The spirit of these later Germanic utterances has undoubtedly been war, and still war, for by the sword shall Germany prosper. Fortunately, these bellicose sentiments are not universal; perhaps no finer sentiment can be found than that which is expressed in words that are writ on the pedestal of a colossal figure of Christ, which has been erected at the head of a mighty gorge overshadowed by the loftiest peaks of the Andes, memorialising the celebration of peace between Argentina and Chili. The words are these: "Sooner shall these mountains crumble to dust than Argentines and Chilians break the peace which at the feet of Christ the Redeemer they have sworn to maintain." This is the pledge of two nations without a past, but who anticipate a future.

To have a great war memorial we must have a great cause, met by a great people and inspired with the noblest ideals. How could the blood-and-iron policy of Germany proclaim its barbaric and brutal message other than by expressing itself in the spirit of the unsophisticated, the uncivilised, the archaic and the savage? Only in such a guise could the military power of Germany be expressed in stone. And so Germany, to find an inspiration for her post-Bismarckian monuments, and to interpret the creed of her military party, has turned to Odin and Thor and the stone gods of her barbaric past for the personification of her great war god, Bismarck, the man of blood and iron.

How differently did the French deify Napoleon! To

* A Paper read before the Town Planning Institute, February 9.

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find a fit expression for his splendour of success, they turned to Imperial Rome to find its symbols and emblems of victory. But I would remind you that this period, and the one that immediately succeeded it, was characterised by a renewed search into classical literature and revival of classical art, and that during this age of reason in thought and research in art, an intellectual nicety of control in all matters pertaining to the arts ruled out every cheap and sensual ideal. Cesar Daly, in his review of the programme for the design of the great Column de Juillet, erected during the forties to commemorate the fall of the Bastile, says: "At the outset it was well understood that the monument must express force, triumph and grief;" and commending the choice of the author of the design, Alavoine, who was placed first in a great competition, he continues by saying: "He was chosen as combining with a scientific spirit the inspired imagination of the artist." This quotation may be taken as affording some indication of the intellectual atmosphere that prevailed in France, and particularly amongst French artists and litterateurs, at the time. It is to be regretted, however, that the most modern monuments of France do not exhibit this artistry of the intellect so conspicuous in the works of her immediate past.

The tendency of recent monuments erected in France has been to give way too much to the fascinating attractions of a dramatic effect, but in making this criticism it is only fair to say that the same thing applies generally to all monuments erected in Europe and America during the last decade

Perhaps a dramatic interpretation of national feeling is more justifiable in Italy than elsewhere, for is not modern Italy the youngest nation in Europe, the career of Victor Emmanuel dazzling, and the bold leadership of the plebeian Garibaldi eventful and entrancing?

Having now touched upon the war memorial in its relation to the national and political outlook, let us consider the technical means whereby its message can be expressed.

The monument that is fundamentally an architectural composition can alone evoke the deepest sentiments of a great people. In the words of Symonds, "Architecture, more almost than any art, connects itself indissolubly with the life, the character, and the moral being of a nation and of an epoch." But it must be admitted that the most intimate and personal emotions can only be aroused by sculpture, the figure expressing in a more concrete way than architecture the whole gamut of the emotions, and thus we get the gods of peace and war. To-day Napoleon, Nelson, Garibaldi and Bismarck, as war gods, have almost passed into the realms of classical lore. Age has a wonderful influence in depriving a hero of his personality, and in making him the symbol of the circumstances of his time. Whoever emerges as the accredited hero and war god of the present titanic struggle will one day have to symbolise the best aspect of his country's strength and determination. As with all works of art, the nobility of a war monument depends upon the depth of the imagination displayed in its rendering, and to be absolutely sublime it must be symbolic. The modern war god must symbolise his country's power, and the art which memorials him must rise to symbolic representation. The modern German monument, however brutal its sentiment, and however crude its form, is symbolic, and in so far is capable of exciting deep emotion.

This matter of symbolic or realistic representation is one which lies at the root of all questions of taste in modern monumental art. The best kind of symbolism is rarely seen in modern examples. A phase of Slavonic art which has influenced the archaism of Germany is exceptional. Utterly unworthy is the kind of symbolism that we get when we see a British sailor in oilskins and sea boots posing as a representative of British invincibility on the sea, or a soldier with bandaged head and defiant gaze as typifying British courage. What we want is splendour of outline in raiment, and profile of figure, themselves typifying in abstract form the emotions that are inherent in the fierceness of the tempest and the resolution of undaunted will.

But real symbolism is closely connected with history and tradition. It will be well, therefore, to glance at those architectural features which repeated use in connection with war memorials has converted into the attributes of warlike expression, and which will remain as such for all time.

The pyramid which throughout every epoch has been regarded as the symbol of endurance and unassailable repose is by tradition the accepted motif for a great tomb, but as conveying the idea of eternal endurance better than any other form it has been very often used as the motif for a war memorial. There is a huge mound of pyramidal form surmounted by a lion on the field of Waterloo.

It may perhaps be said that the Column of Victory is the earliest known war memorial. Pliny, writing about 50 A.D., tells that statues were placed on columns to raise them above others of ordinary men, and that the custom of erecting columns for this purpose is a much older one than that of erecting arches. The Greeks were probably the first to place statues on columns. There may be seen to-day the remains of four from Delphi and Olympia; these are not immense shafts borrowed from the peristyles of temples, but original conceptions, subsidiary to and quite different from the columns of the temples, and having an entity entirely their own. The Roman, with less originality, took his column directly from his temple and used it as a pedestal for a statue on a gigantic scale. The most notable of the Roman columns is that of Trajan, still standing in the forum of Trajan, and now supporting a figure of Saint Peter. This column is the prototype of innumerable columns since set up all over Europe. The Vendome Column, Paris, and the Nelson Column, Liverpool, are conspicuous examples.

But the Romans also originated the Duella Column, which has always been the recognised prototype for a column to commemorate a naval victory.

There have been many revivals during the last one hundred and fifty years of Greek and Roman art, each distinguished by characteristics seen from different viewpoints. With us during the Napoleonic era we find designs for columns purely Roman in type, but later, when research was directed to Greek art, we get a Greek phase, seen in the columns at Newcastle, Dublin, Hull, Yarmouth, &c. Then we get the age of reason and originality in France, which produced what we call the Neo-Greek and also the Neo-Roman styles of architecture, and, incidentally, columns like the Colonne de Juillet and those splendid designs which were produced in connection with a competition for a column to commemorate the revolution at Versailles.

The Americans have perhaps been the last of the nations to erect columns; the Prison Ship Martyr's Monument at Brooklyn and the Battle Monument at West Point, New York, both from the designs of McKim, are very beautiful examples.

But perhaps the most interesting, if not important, of the different types of war memorials which history reveals to us is the arch. Used purely as a war memorial, it was the invention of the Romans. Like the column, it varies in character at different periods. The Constantine Arch at Rome is probably the most important and best preserved of the earliest examples, though the columns used in this arch and most of the sculpture is said to have been taken from an earlier arch by Trajan. Then, still standing to-day there is arch of Septimus Severus, very similar in design, and others in a more or less complete state of preservation, scattered throughout the whole of the Roman Empire, the most interesting being, perhaps, the arch of Titus, and others at Beneventum, Ancona, Orange and Remi.

The arch as a war memorial fell into disuse during the medieval period, but was revived during the time of Napoleon, and in the Arc du Carrousel, and in the Arc de Triomphe at Paris, we have characteristic examples, copied in England, in so far as the idea was concerned, in such

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examples as the Marble Arch and the Arch at the top of Constitution Hill. But it should be mentioned in passing that there were many archways approximating to monumental city gateways erected in France during the régime of the Louis, such as those in Paris of Saint Martin and Saint Denis, those at Nancy, and others in the provinces.

There were also many triumphal arches erected during the first half of last century in Italy, such as Giadot's triumphal arch in the Piazza Cavour at Florence.

The latest of monumental arches is that which has been erected in Washington Square, New York. It is an arch of great beauty and refinement, easily surpassing many earlier examples by which McKim, its author, was no doubt inspired.

Next in importance to the arch and column comes the obelisk as used both as a stolen treasure from Egypt, and austerely simple, and as mounted and decorated and used in a way that is strictly a degeneracy.

As a stolen treasure the obelisk has ever been set up singly, and as an isolated feature has been used as a foil to an architectural composition. The obelisk in the Piazza of St. Peter at Rome emphasises the access to an approach without obstructing the vista in a way that no other form could so well do. That at Paris which is set up in the Place de la Concorde, and on the exits of the vista which, commencing at the Arc du Carrousel terminates at the Arc de Triomphe, answers the same purpose in the same way.

To the irresolute modern these great monoliths in syenite granite are truly records of the will-power and endurance of their makers, but since the time of the Egyptian dynasties no nation has felt equal to incurring the necessary energy and expense required to quarry stones of such gigantic proportions. Either as at Washington, where the obelisk commemorating the independence of America, and is 660 feet high, it is built of small stones, or else a more complicated treatment has been adopted in place of the simple idea. When erected with small stones it is undoubtedly a mistake to give it the accepted proportions of the monolith; it should be shorter and more truncated in form. That erected in Phœnix Park, Dublin, and known as the Wellington Obelisk, is perhaps the best of its kind.

The reasoning Frenchman, always alive to the fact that mere size does not constitute greatness, never fell into the error of erecting obelisks of Egyptian proportions out of innumerable small stones, and it was not until the period of the second Empire that they saw in it possibilities that would allow of its being used simply as a "motif" for a monumental stone. It was the war of 1870 which really inspired French architects to make a new departure in the use of this feature. A competition held at the Beaux Arts in 1870 produced results that to-day may be regarded as the prototypes of a variety of monuments, ranging from the stunted obelisk set upon a rich pedestal to the obelisk with a cap supporting a figure like the Gambetta monument in front of the Louvre, or the 1870 war monument at Caen. To my mind, the Gambetta monument is a very decadent type; it was erected so recently as 1886, and the explosive character of its sculpture marks the period of realism which at that time set in. But there is one other feature that the war of 1870 was instrumental in suggesting—a piece of ammunition, a cannon-ball or a shell, which, wreathed and graven, was set upon a pedestal. Of such designs, that by Legrange is a very inspiring conception.

(To be continued.)

WITH the assistance of the company's bankers, the London City and Midland Bank, the directors of the Maen Offeren Slate Quarry Co., Ltd., have subscribed for £20,000 of the new War Loan.

THE first important exhibition of the sculpture of Mr. Jacob Epstein will be opened on Saturday, February 17, at the Leicester Galleries, Leicester Square. Portraits of Lord Fisher, the Countess of Drogheda, Mr. W. H. Davies, Mr. Muirhead Bone, and other interesting personalities will be included in the collection.

THE MAIN DRAINAGE SYSTEM OF LONDON.*

By GEORGE WILLIAM HUMPHREYS, M.Inst.C.E.

Two Papers dealing with the Main Drainage System of London are to be found in the Proceedings of the Institution of Civil Engineers. Sir Joseph Bazalgette, in 1865, described the creation of intercepting sewers which had been constructed shortly before that date, and Messrs. Worth and Crimp brought the subject up to date in 1897. The present position of the undertaking, at the end of 1916, is described in this communication. London was originally drained by means of the old open tributaries of the Thames, examples of which are the Counters Creek, the Westbourne, the Kilbourne, the Fleet, the Walbrook, &c., and these tributaries, although covered in, perform the same function to-day. At a later stage cesspools were introduced. Following upon the introduction of the water-closet in 1810, the overflow from the cesspools into the sewers, at first prohibited, became permissive, and in 1847 became compulsory. Cesspools were then abolished, and the state of the Thames became offensive by reason of these streams discharging within the boundaries of the Metropolis. In 1855 and 1858 the Metropolis Management Acts were passed, whereby the Metropolitan Board of Works was constituted, and *inter alia* was charged with the duty of providing and controlling a set of main or arterial sewers to drain the Metropolis, a similar duty as regards local sewers being entrusted to local parishes or vestries. A system of large intercepting sewers, which ran from the west of London, was decided upon and constructed. They discharged into the Thames at points below the Metropolis, the outlet for the northern side of the Thames being placed at Barking, and that for the southern side at Crossness. The discharge was effected on an ebbing tide, the sewage in the tidal intervals over the period of high water being stored in reservoirs at the outfalls.

In 1884 a Royal Commission reported as to the state of affairs then existing, the discharge of crude sewage into the river at the new outfalls having been found to produce disagreeable effects, owing to the time taken for the discharge to reach open water, due to the daily tidal oscillations. In consequence of this report, works were undertaken to obtain precipitation of the sewage at the outfalls, the resulting sludge being taken out to sea and discharged in the vicinity of the Maplin Sands by means of specially constructed vessels.

Since 1897, the date of the last communication to the Institution, the London County Council, constituted in 1889, has carried out many large and important works for the enlargement of the system and the amelioration of the drainage conditions over the large and populous areas now drained. During the first ten years of that body's existence many important works were undertaken, but in 1899 it adopted a scheme, framed upon recommendations put forward by Sir Benjamin Baker and Sir Alexander Binnie, to enlarge the arterial system, at an estimated expenditure of £3,750,000; and in 1903 it decided to expend, as a complement to these works, another £737,000, on a scheme prepared by Sir Maurice Fitzmaurice for storm-water drainage sewers and works. Upwards of £4,900,000 has been expended on this scheme up to date, the advent of the war having delayed completion of certain works. The old intercepting and outfall sewers, both on the north and on the south side of the river, have been practically duplicated and large provision has been made for the dealing with heavy rainfalls by the provision of storm-water sewers and pumping-stations. Altogether about 87 miles of sewers, the greater length of which consists of large main lines, have been constructed by the London County Council. Dependent as London is upon the tidal level in the Thames for a drainage discharge, the existence of a large area of 21 square miles in the heart of the Metropolis, the level of which is below very high water, and ten square miles

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* Abstract of a Paper read at the ordinary meeting of the Institution of Civil Engineers on Tuesday, February 6.

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of which is below the level of an average high water, makes the storm-water drainage problem a difficult one to deal with completely. The legislature has recognised this by imposing restrictions on the erection of dwelling-houses on the low-lying area when certain conditions prevail. The Author is of opinion that there is need for further legislation in order that the problem may be satisfactorily dealt with in the future, and that further provision will have to be made in the direction of providing additional storm-water outlets to the Thames, the provision made as regards intercepting sewers probably being sufficient for many years to come.

Several features of great interest presented themselves during the construction of the new intercepting sewers. The most marked was the comparatively small disturbance caused to the general community during the progress of the works, carried out as they were through the most populous parts of the Metropolis. A system of tunnelling was adopted wherever possible, and very long drives were made, reaching in one case up to 6,129 feet. Wherever sewers passed near to valuable properties, the tunnel was driven with a shield and cast-iron segments were inserted, lined on the inside with concrete and brick-work. This method of construction proved also very valuable where bad ground was encountered, the Thanet sands heavily charged with water being satisfactorily dealt with by these means. The highest class of workmanship has been insisted upon even in small details. Where, owing to the lapse of time, defects have developed in the old works, improvements have been effected, but the main features of the scheme laid down and initiated 50 years ago remain in their original form, and have an equally long prospect of utility before them.

The population of the Administrative County of London at the last census (1911) amounted to 4,500,000, in round figures. The London County Council has admitted to its drainage system the sewage from certain outlying areas, as, in fixing the county boundaries, considerations of watershed areas were not adhered to. In agreeing to drain these outside areas, the proviso has generally been made that only sewage to the extent of about 50 gallons per day per head of population on the area served is to be delivered and dealt with. Storm-water flow is therefore excluded. The system therefore dealt with an estimated population of 5,334,731 in 1911, and the indication given of change in these figures to the present date (1916) is that, as regards the county area, there is a slight diminution, while there is an increase in the out-county areas. The total quantity of sewage computed to have reached the outfalls was about 200,000,000 gallons a day in 1894-95, and 280,000,000 gallons a day in 1914-15, an increase of 80,000,000 gallons per day over the discharge of 20 years ago. Compared with the past this is composed in part of rainfall that formerly was discharged by means of the old river-valley sewers and was not intercepted.

The effect of the elimination of the greater part of the suspended solids at the outfalls, and their conveyance to sea as sludge, when this operation was in working order in or about the year 1893, was immediate. The change in the condition of the foreshores and the river has been remarkable. The cost of removal of the sludge to sea during the past 10 years was on the average, for working alone, 3.8*d*., or, including capital charges, 4.4*d*. per ton of sludge dealt with. The cost of precipitation over the same period has amounted, on an average, to £1 3*s*. 4*d*. per million gallons dealt with, including capital charges. The discharge of the sludge in the outer estuary of the Thames has been accomplished without any prejudicial results, and certainly by no other method could a like result, as regards low cost and immunity from nuisance or harm, have been attained. The London County Council has purchased about 750 acres of land in the neighbourhood of and surrounding its outfalls. This has the effect of isolating the outfall-works, and at the same time the land would be available if later on future developments should demand the treatment by tried bacterial or other processes of either some portion of the effluent or the sludge.

The capital outlay on the system over the period 1856 to March 31, 1914, amounted to about £12,500,000, of which approximately one-half has been repaid. The net expenditure for maintenance for the year 1913-14 was £303,402, towards which out-county areas contributed £28,467. The rate charges for main drainage services (capital and maintenance charges) in the county area amounted to 3.355*d*. In addition to this, Londoners pay the local drainage rate, which, roughly speaking, is 1*d*. in the £ averaged over all the borough council areas.

GOTHIC FOLIAGE IN ENGLAND.

A LECTURE on the subject of English Gothic foliage sculpture was given before the Royal Photographic Society at its meeting on February 6 by Mr. S. Gardner, President of the Harrow Architectural Club. The lecturer said that although foliage sculpture was not always to be found in Gothic buildings, this form of expression was as much a thing to be looked for in such buildings, generally speaking, as were flowers in a garden. In showing some examples of foliage at Amiens and Rheims, he pointed out how French foliage differed from English. Foliage sculpture was not a strong point in French Gothic. In England, during the Anglo-Norman period, most of the ornamentation was English rather than Norman. The Norman appeared to be responsible for the general structure, while the Saxon filled in the detail. He instanced the capitals at Christ Church Cathedral, Oxford, as beautiful specimens of refined Early-English foliage, and he proceeded to divide such foliage into two types, the eastern and western, according to the character of the trefoil. In the eastern type the midrib was prominent, and was turned over, so to speak, into the leaf itself; while in the western type the midrib was cut out altogether, the leaf forming something resembling a loop. The eastern type was seen to perfection at Lincoln and the western in St. David's Cathedral, but at other places, notably at Wells, both types were to be seen in juxtaposition. The lecturer admitted that this classification might be disputed in view of the large amount of inter-mixture, but, having taken several thousands of photographs both east and west, he thought he was justified in maintaining it. While the eastern type was not limited to the east, it would not be found that there were many examples of the western type in the eastern counties—at least, that was his experience, having visited many hundreds of places. As to naturalistic foliage, this he regarded as decadent, suggesting petrification of the natural leaf rather than art. He ended by showing an example of the latest Gothic foliage at King's College Chapel, Cambridge.

In the course of the discussion, Mr. Hawkings said that he could not quite agree that natural foliage in sculpture was decadent. That was a doctrine which used to be taught in South Kensington forty years ago when he was a student there. Since then he had not only grown older, but, he hoped, wiser. The lovely examples at Southwell Minster and other places exemplified probably the highest type of foliage work which our English carvers were able to produce; at any rate, they showed the carver communing with Nature. Nor could he agree with the classification of the Early-English type into eastern and western. It had generally been considered that decorative work should be divided into two kinds: the Early decorative and the Later. In the earlier type the foliage was natural, and in the very earliest there was very little bumping on the foliage, and nearly always—though not invariably—the stumps were shown; one rarely saw the front of the leaf. In later varieties this was departed from, and later and later in the work the bumps were more evident, so that in the Perpendicular style one got almost away from the lateral type and came to numbers of stumps and to conventional work in the matter of fruit and foliage.

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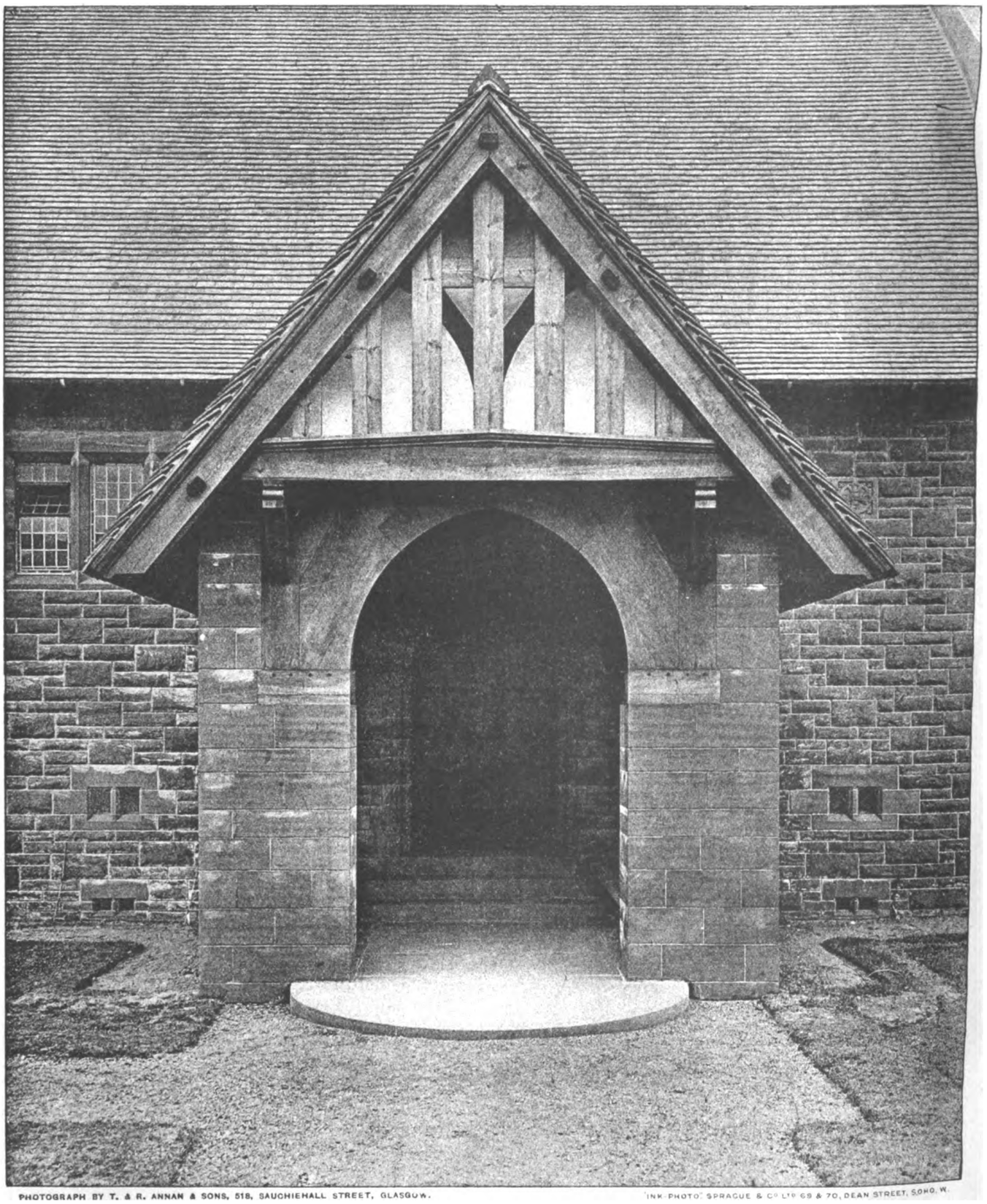
THE STEEKIT YETTS O'AULD TRAQUAIR.

From a Lithograph by A. S. HARTRICK.

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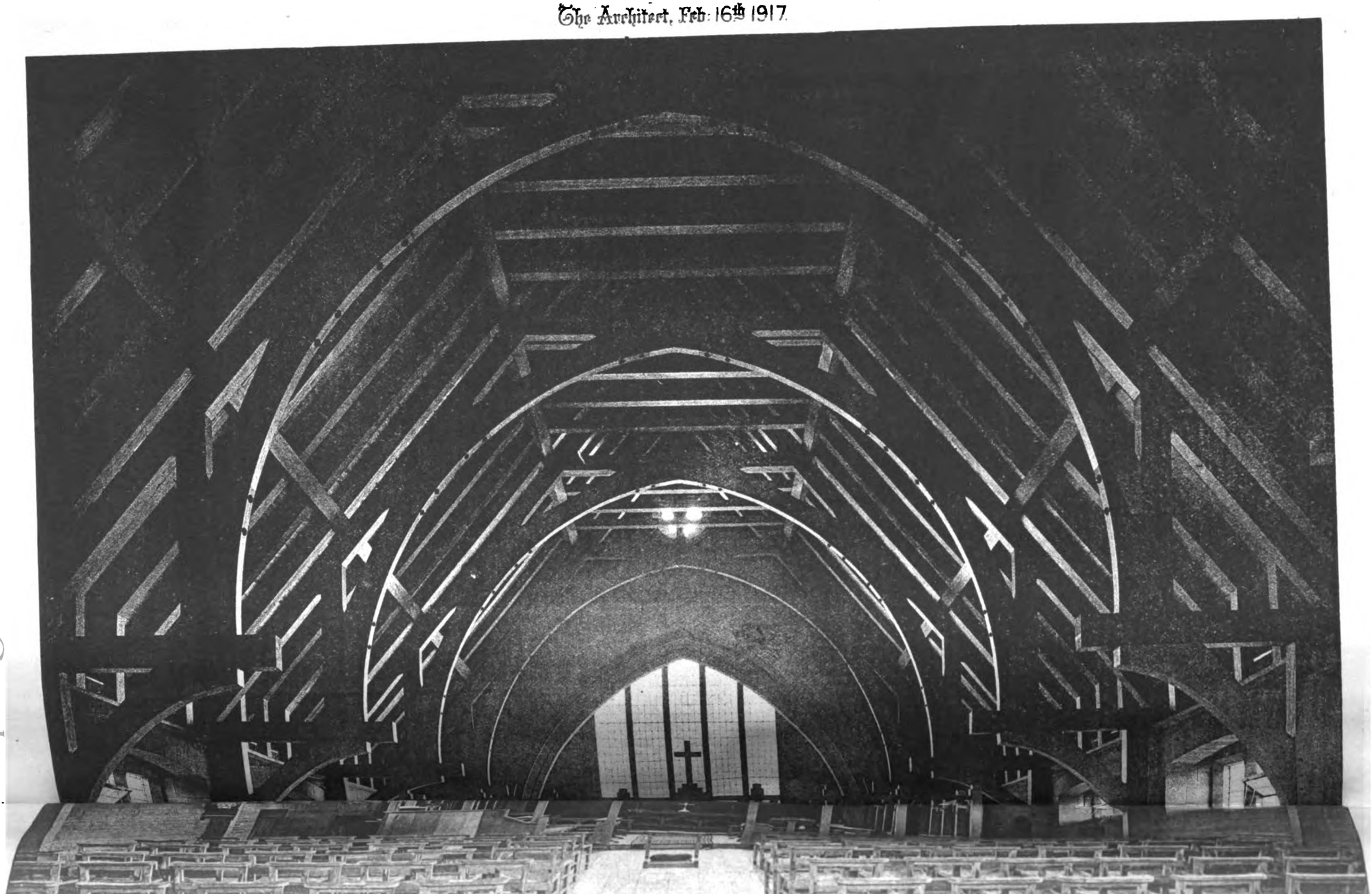
ST. NINIAN'S CHURCH, TROON, N.B. THE PORCH,

MR. JAMES A. MORRIS, A.R.S.A., Architect.

(Royal Scottish Academy, 1916.)

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ST. NINIAN'S CHURCH, TROON, N.B. INTERIOR OF NAVE WITH TEMPORARY CHANCEL.

Mr. JAMES A. MORRIS, A.R.S.A., Architect.

(Royal Scottish Academy, 1916.)

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ST. NINIAN'S CHURCH, TROON, N.B. THE FONT.

Mr. JAMES A. MORRIS, A.R.S.A., Architect.

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THE SALUTE, VENICE.

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ART IN LONDON.

AT THE LEICESTER GALLERIES.

AT this time of writing there are two exhibitions being held at these galleries—one a small collection of paintings and drawings, the work of M. Léon de Smet; the other a much larger collection emanating from the Senefelder Club, whose president is Mr. Joseph Pennell; let us regard first this show, and as we have made mention of this artist, regard may be immediately paid to his contributions, "The beautiful homes of my beautiful Home." Mr. Pennell's group of eight lithographs is devoted to some characteristic American domestic architecture, and is portrayed with the customary vigour and effectiveness of his technique. M. Willette, too, in "Le coucher de la mariée," merits praise for his style. but the design is altogether too fantastic. Mynheer Storm van Gravesande is to be congratulated heartily upon "The Salute, Venice"—a perfect work of art, where we see the masses of this church across the waters of the canal, all detail being suppressed. Mr. Clausen's contributions "Hoeing turnips" and "Mowing" are very superior to much work of his which has appeared in the past; in fact. these are positively, not merely relatively, good.

And Fantin-Latour is charmingly represented in "Study for Eve" (which we have seen and noticed before),* "Le génie de l'air," and "Baigneuse debout"; he both poses and composes like a master, and his art is graceful as Eve herself; the same qualities of good technique and graceful pose, though producing a different effect, are observable in Puvis de Chavannes' "La Fortune" and "La Normandie," with an added decorative value, however.

It must be remarked here that the exhibition includes lithographs by other artists than those having membership in the Club. Some studies by Watts and Lord Leighton are typical of their complete mastery of the pencil. Mr. A. S. Hartrick's contributions will appeal strongly to architects, and we would draw special attention to "The Steekit Yetts o' Auld Traquair" and "The evening hymn." Signor Martini's "Love" is peculiarly absurd and almost Poesque, and Miss D. St. John George's "Beyond the Veil" has the demerit of being but loosely knit together, being indeed almost unknit. Mlle. Ethel Gabain has a clever study of the head of a tired woman, the eyes being most expressive. M. Carrière's work is mostly woolly in its touch, though an unsatisfactory exception is observable in No. 144, which is harsh. Mr. Anthony Barker has good, attractive work in "Changing pastures" and "Bridge at Zierikzee." After referring to Felicien Rops' nightmare design "La médaille de Waterloo" (which is of the poorest) and to some good work by Messrs. Walter West and Will Rothenstein, we must pass on to the other show, conscious as we are of having omitted mention of much that is praiseworthy. The exhibition as a whole, is forceful in its evidence of what can be done in the way of artistic lithography, whose advancement is the purpose for which this Club was founded.

And now a few words—but truly, not many, about the art (!) of Léon de Smet; if we are to regard six works out of thirty as a satisfactory proportion for obtaining words of credit, well and good; in fact, we think we are stretching a point in including six. The works of which we really fully approve are "Fountain in Kensington Gardens," "Harmony in White," and a portrait of Mr. John Galsworthy. Some of the other portraits are evidently faithful likenesses, even if lacking in pictorial treatment; but Nos. 28 and 29 are apparently mis-called in the catalogue. "Harmony in Silver" has many good points, and there is pleasing sky effect in "Evening," (No. 7). The so-called still-life, the "Youth," the "Eve," the "Venus"—ah! these and others are of the poorest; in the adjoining gallery Fantin-Latour shows what may be done with Eve as a subject. But enough has been written about an indifferent, if small, collection.

* See Art notice in "The Architect," March 31, 1916.

"THE SEVEN SACRAMENTS" OF CHARLES SIMS, R.A.

IN these days we are constantly brought to the point of consideration—What is Art? Is it the expression in delineation of what is beautiful or worthy; or is it perhaps merely the faithful representation of what we see in Nature? If the former be the proper definition, the artistic expression of any subject is confined within the limits of a beautiful or worthy representation. As this, however, might connote an untruthful portrayal, we must add to the definition of Art that it should envisage Truth in any case, and thus our second definition would seem to accord more properly with a reasonable view of Art, taken in conjunction, of course, with the first definition. The misfortune nowadays is that many artists (or, rather, delineators) are unmindful of the claims of Truth, Beauty, and Worthiness, and yet they obtain the plaudits of an unthinking crowd, ever prepared to approve what is displayed to their gaze with that intent in view. We do not for a moment suggest that the subject of Mr. Sims' paintings (now displayed at the Dowdeswell Galleries) is anything but worthy, for it is one that admits of artistic expression in the best sense of this phrase. But Mr. Sims is far from satisfying our reasonable requirements. This P. R. B. style of work of Mr. Sims possesses, as we think, the demerits of the school, unredeemed by anything which may be advanced in its favour. There is no flavour of devotional treatment, the compositions and modelling are poor, and most of the colour schemes indifferent. Nos. 1 and 7 ("Baptism" and "Marriage" respectively) have, however, fairly effective colour treatment on a plane which Mr. Sims has made his own; and with all the will in the world to write something further in approval we find nothing else to say but that some of the pictures succeed in telling their story. When all is said, however, we fear that this is but condemning the exhibition with faint praise.

GLASGOW CATHEDRAL.

MR. T. L. Watson, F.R.I.B.A., delivered an address upon "Glasgow Cathedral in the Thirteenth Century" to the members in the Edinburgh district of the Scottish Ecclesiological Society. He said the Cathedral of Glasgow was a page of history. It differed essentially from other cathedrals in the possession of an upper and lower choir, and in the unusual method followed in its construction, which was such that successive phases of architectural style were fully displayed and contrasted. Above all, it offered a unique example of an earlier plan supplanted by a later, but in such fashion that both might be read as in the earlier and later manuscripts of a palimpsest. The key to the history of the building would be found in the fact that the lower aisles and the adjoining middle compartment were of different periods, and that in the interval that elapsed between them the entire fabric of the choir above the level of the lower church was constructed. During this interval architectural style had developed from an early and immature condition into the perfected Gothic art of the thirteenth century, so that there were two widely different styles in immediate contact with one another, but so well harmonised that their difference of date was not recognised until about thirty years ago. When the lower church was built there was of necessity a plan of the whole vault, but this was carried out only so far as the lower aisles, the outer springer-stones of the middle compartment, and a bridge of communication between the upper aisles. When, therefore, on the completion of the choir and clerestory, the builders returned to the middle vault and decided upon an entirely new plan, they had to alter the old springers and replace them with others, to adapt them to the later design, and from these altered and renewed springers we were enabled to recover the earlier plan of the vault.

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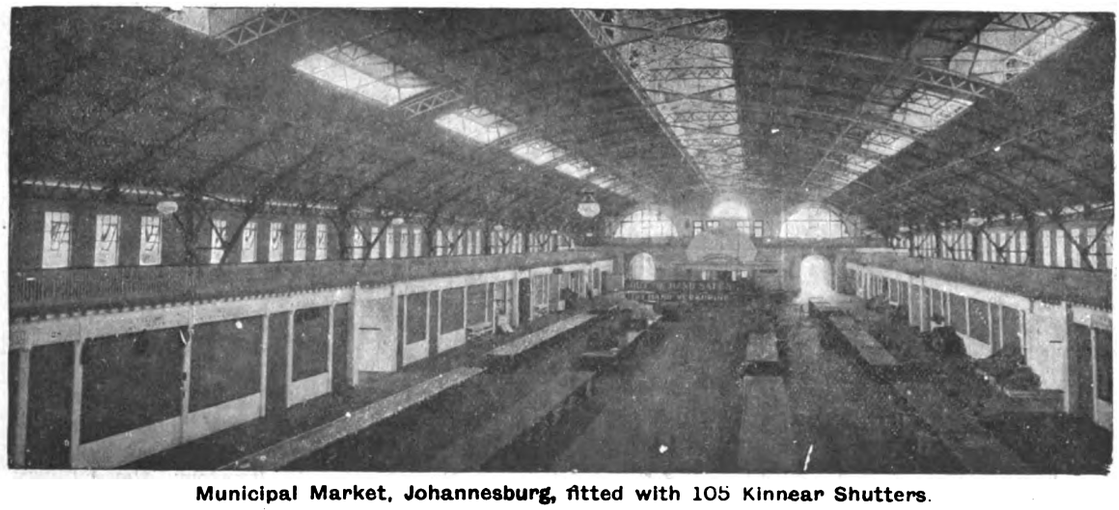
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This discovery opened up the history of the structure as by the raising of a curtain. Jocelin's unfinished work of the twelfth century was demolished by Walter, the founder of the existing building, who reserved the portion first constructed as a temporary chapel for the use of worshippers during the erection of the Cathedral. Here, accordingly, was found a pillar taken from Jocelin's church, together with a fragment of the temporary altar and shrine of St. Kentigern. On Walter's death the work was continued by his successor, to whom we owe the greater part of the existing choir. The vaulting of the lower aisles was reached about 1240, but the middle and eastern vaults were delayed, the former till 1260 and the latter till 1270, the material for the choir and clerestory being brought in by way of the eastern aisle and hoisted from the middle compartment to its place on the walls. The later plan of the middle vault, dating about 1260, and based upon the chapter-house vaulting of the English cathedrals, was substituted for the original plan of 1240, notwithstanding the fact that it involved a large amount of additional work in the alteration of the early springers. To this we owed one of the greatest curiosities of architectural history, and to Bishop Bondington and those associated with him we owed the possession of one of the noblest buildings in Scotland.

EMPLOYERS AND THE FUTURE OF INDUSTRY

In the report of their proceedings during the past year, the Employers' Parliamentary Council express the opinion that when the time comes for taking stock of the nation's industrial resources, in view of the universal competition which will rule the markets of the world, it will be found that any return, even on a small scale, to the conditions which governed national production in the period before the war would be disastrous and possibly fatal to British interests both at home and abroad. It may, say the Council, be assumed as extremely unlikely that the systematic restriction of output which prevailed before the war, and is unhappily still existent, will ever again find favour in this country outside the ranks of the labour unions. It is worthy of note that this system, which was found to be such a grave menace to the success of British arms in the field, and was vigorously denounced by those responsible for the conduct of the war, had been universally declared by the labour unions not to exist. It is permissible to hope that even among labour unionists, when once the stern realities which have yet to present themselves become generally appreciated, the lesson of the past will serve as a warning against future folly, and wise counsels will prevail where formerly a wholly mistaken and mischievous policy was pursued.

The Council note evidence on every hand of the growing feeling of distrust in the old methods of labour unionism. The fact of those methods having to be abandoned to meet national necessities has impressed itself strongly even on the minds of those who formerly excused them as promoting the interests of labour. While it is only natural that such a body as the Trade Union Congress should formally reiterate its demand that pre-war conditions should be resumed in accordance with the guarantees given by the Government when it was found essential that those conditions should be set aside for war purposes, it may be noted that so far no reasons have been advanced for reverting to the evil practices which the pressure of direful circumstances caused to be discontinued, but a multitude of reasons—most of them obvious and incontrovertible—have been put forward in favour of those saner regulations with respect to labour and industry which it will soon become of vital importance that all classes concerned should strictly observe.

The demand that after the war labour shall take a larger share of the profits of industry, a demand that has been endorsed by several members of the Government, and with which sympathy has been expressed in many influential quarters, is, in the opinion of the Council, one to which no reasonable exception can be taken, provided that labour, earnestly and whole-heartedly, performs its part in the general scheme of production, and thus establishes a good title to the claim for greater remuneration. A high standard of production can be maintained only if the energies of capital and labour alike are exerted to their utmost capacity. Whatever the conditions under which various industries are conducted in the future, whether systems of co-partnership, or profit-sharing, or wages, the effort everywhere will have to be of a generally sympathetic and high-spirited character if all concerned are to benefit in the shape of increased gains. It has been frequently suggested of late that the war has broken down class barriers, and that the old element of suspicion, which it is alleged pervaded the relations between rich and poor, capital and labour, will have disappeared when the ordinary life of the nation is resumed. If this should prove to be so, and all classes unite in the common aim of ensuring the nation's prosperity and progress, there will be no room for strife and strikes, but each and all will be animated by mutual trust, and strive for the best results which friendly combination and co-operation can hope to achieve.

DISPUTE OVER OWNERSHIP OF LAND.

A REMARKABLE dispute concerning the ownership of a piece of land, occasioned through a plan not being drawn to scale, came before Mr. Justice Bailhache and Mr. Justice Atkin, in the King's Bench Divisional Court, on Friday, on an appeal of Mr. Alfred Ashby, draper, of High Street, Camberley, against a judgment of Judge Harington, who, at Aldershot County Court, had found in favour of Mr. George Potter, of Ash, Surrey.

Mr. Justice Bailhache, in delivering judgment, said this was a dispute between two adjoining owners as to the dimensions of their respective parcels of land, which at one end abutted into High Street, Camberley, and at the other end terminated in a right-of-way. The whole of the land, which had a frontage of 50 feet, was bought by Mr. Potter in 1897. In 1898 he sold a portion to Mr. Edgar Seaber, who in 1899 disposed of it to Mr. Ashby. In conveyance to Mr. Ashby the reference to the parcels of land went back to the conveyance to Mr. Seaber, and in order to ascertain what was conveyed to Mr. Ashby they had to look not at his conveyance, but at the conveyance to Mr. Seaber. This showed that the only positive dimension, apart from a passage way, was a dimension having a frontage of 24 feet to High Street. A plan attached to the conveyance was confessedly not drawn to scale. At the time the conveyance was executed Mr. Potter had begun to build a house on the piece of land which he retained in his possession. It was contended by Mr. Ashby that, inasmuch as the plan apparently divided the land at the back into two equal parts and gave him 24 feet of the High-Street end, he was entitled to that portion, and he appeared to have acted on that supposition because he seemed to have erected a shed, a fowl-house, and a fowl-run parallel on that line. On the other hand, Mr. Potter said that was not so, that the plan was not drawn to scale, and, therefore, could not be relied upon, and that what one must look to was not the apparent size of the plot on the plan, but what the plan showed—the existing facts or what were intended to be the existing facts. When they looked at that (according to Mr. Potter), they would find that a passage way of 3 feet 3 inches was carried in parallel lines from back to front; that there was no doubt where the passage way began in the front, and if they continued to the end of the parallel lines as the plan showed, and disregarded the apparent size of the plan, it would be found that Mr. Ashby's piece of land, instead of being equal to Mr. Potter's piece of land at the back, was considerably narrower; and that Mr. Ashby's shed and part of his fowl-run were built on land which belonged to Mr. Potter. In those circumstances the County Court Judge had to decide which of those contentions was right. There was no doubt (continued his Lordship) that the

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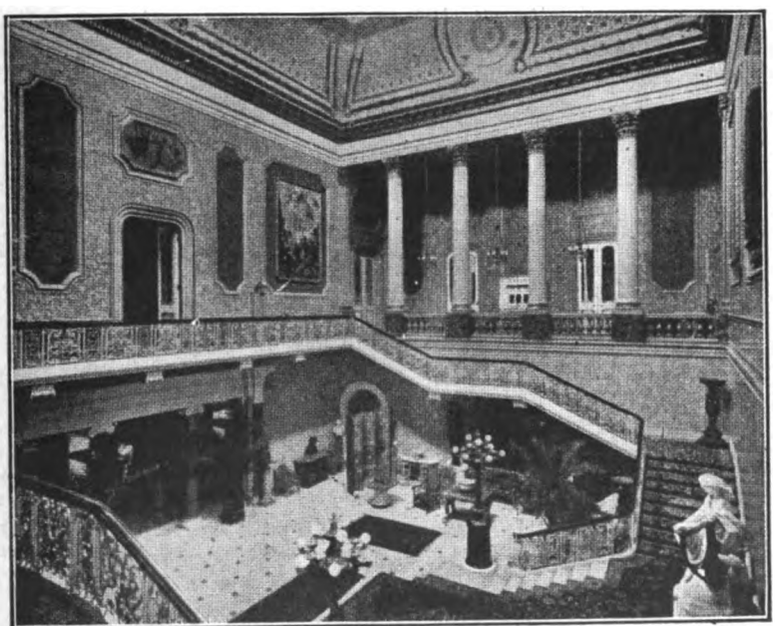
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plan was not to be disregarded. In truth and in fact it was the main, if not the only, description of the property contained in the deed. But in regarding the plan, inasmuch as it was not to scale, more regard must be had to what was shown on the plan as an existing or intended fact than to its apparent dimensions, and the thing which had determined his Lordship more than anything in favour of the judgment was the fact that the plan showed beyond all question a 3 feet 3 inches passage way running in parallel lines from back to front. Now, if that was so, and they knew where the passage way was intended to start, in order to apply this plan to the surface of the land all they had to do was to start that passage way in the front and run it back in parallel lines to the back, which was what the Judge had done in this case; and in doing that he had come to the conclusion that Mr. Potter's contention was right and that Mr. Ashby's contention was wrong. His Lordship was at first inclined to think, by the form of the judgment, that the County Court Judge had disregarded the plan altogether, but on going into the matter more fully he had come to the conclusion that the Judge had not disregarded the plan. He had disregarded the plan so far as eyesight was concerned—he had not trusted to his eyesight in respect of it, nor had he scaled the plan—but in other respects he had regarded the plan, and come to the conclusion he had having regard to the plan and to the facts existing at the time. The question was entirely a question of fact, for the Judge who, in his Lordship's view, had treated the plan with the respect which the plan on such a conveyance and referred to in such terms as in the conveyance was entitled to have. His Lordship therefore thought that the appeal failed.

Mr. Justice Atkin expressed agreement, and the appeal was dismissed, with costs.

Counsel for Mr. Potter asked for costs of a part-hearing of the case before a King's Bench Divisional Court last May.

Counsel for Appellant: On that occasion it came before Mr. Justice Rowlatt and Mr. Justice Sankey, who expressed strong views about this plan and suggested a settlement.

Counsel for Mr. Potter: Attempts were made to reach a settlement, but without success.

Counsel for Appellant: We think we should have won this case: then we should have got all the costs.

Mr. Justice Bailhache: If an order is necessary in regard to the costs of the part-hearing we will make it. I have no doubt the costs have far exceeded the value of this little piece of land—by a long, long way.

Counsel for Mr. Potter: They have, my Lord.

BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

ENGLAND.

BUCKINGHAMSHIRE.

Chesham.—Eighty working-men's dwellings (£19,000). Mr. P. C. Dormer, Council surveyor.

DURHAM.

Durham.—Picture theatre and café, North Road. Messrs. White & Stephenson, architects, 55 Pilgrim Street, Newcastle-on-Tyne.

ESSEX.

Braintree.—Buildings, Chapel Hill, for Messrs. Lake & Elliot.

Walthamstow.—Sub-station, boiler-house, &c.: extensions for the Electricity Committee.

West Ham.—Premises, Windmill Lane: additions for Messrs. Innes, Sons & King.

Premises, Russell Road, Custom House: addition for Messrs. Goodacre & Son.

Stores, &c., Wise Road and Union Street, for the Gas Light and Coke Company, Ltd.

Paragon Works, Pacific Road, Canning Town: addition. Mr. W. Stewart, F.R.I.B.A., architect, 4 and 5 Aldgate, London.

HAMPSHIRE.

Havant.—Premises, Brockhampton Lane: extension for Messrs. Stent & Sons.

KENT.

Maidstone.—Motor garage, Medway Street, for Messrs. Laurence, Ltd.

LANCASHIRE.

Blackpool.—Banking premises, Whitegate Drive and Leamington Road: alterations for the Manchester and County Bank, Ltd.

Additions and alterations, Talbot Road, for H. Nuttall exors.

Additions, Coronation Street, for Mr. J. Tomlinson.

Alterations, Market Street, for the Clifton Arms and Pier Hotel Company.

Facit.—Military Hospital: proposed alterations.

Great Harwood.—Church for St. Wulstan's Church Trustees.

LEICESTERSHIRE.

Melton Mowbray.—Motor garage, Algernon Road, for the Co-operative Society.

MONMOUTHSHIRE.

Chepstow.—Sixteen houses for the Standard Shipbuilding Company.

NORTHUMBERLAND.

Wooler.—Hospital and sanatorium.

SOMERSET.

Bath.—War hospital: chapel (£1,000).

SURREY.

Epsom.—The Cinema Royal: additions.

WARWICKSHIRE.

Coventry.—Premises, Broad Street: additions for Mr. F. E. Plumb.

Warehouse, Hales Street: addition for Messrs. Tuck & Blakemore.

Edgewick Works, Canal Road: addition for Alfred Herbert, Ltd.

YORKSHIRE.

Batley.—Factory, Providence Street, for Messrs. Harrison & Co., Ltd.

Dewsbury.—The Staincliffe Institution: extensions. Messrs. Hanstock & Son, architects, Branch Road, Batley.

Goole.—Shops, Swinefleet Road, for the Goole Shipbuilding and Repairing Company.

WALES.

Cardiff.—R.C. Church, Canton: Williams Memorial Tower.

SCOTLAND.

Dunfermline. — Episcopal Church Hall, Rosyth (£6,000).

Glasgow.—Store, Castlebank Street, Partick, for Messrs. A. Low & Sons, Ltd.

Works, Parkhead: extension for Messrs. W. Beardmore & Co.

Hawick.—The Anderson Sanatorium: additional twelve beds (£1,300).

Milngavie.—Parish Church: proposed memorial tower.

IRELAND.

Carrigaline.—House, Waterpark. Mr. J. F. McMullen, M.R.I.A.I., architect, 30 South Mall, Cork.

Cork.—No. 69 St. Patrick Street: alterations. Mr. B. O'Flynn, architect.

Oldcastle (Co. Meath).—Proposed labourers' cottages (£1,700)

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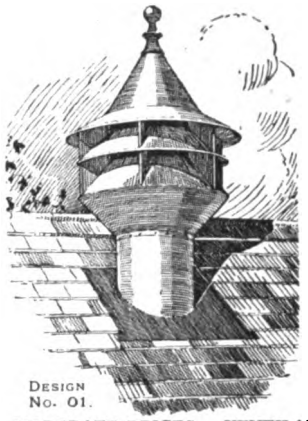
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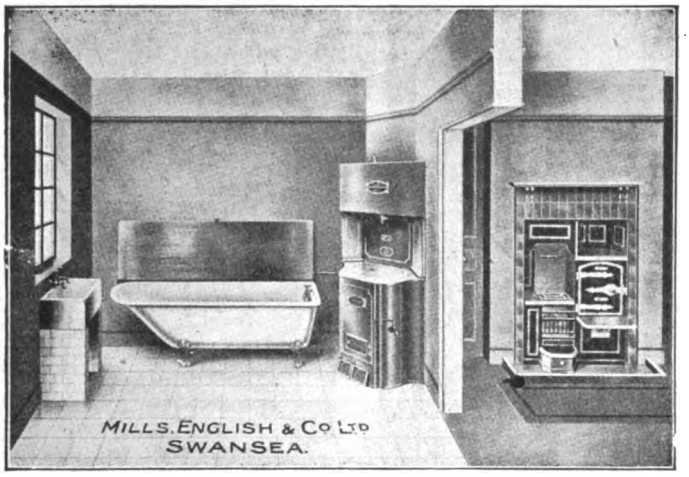
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THE ARCHITECT

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FORTHCOMING EVENTS.

Friday, February 23.

Edinburgh Architectural Association: Paper entitled "Romanesque Churches in Poitou," by Mr. John Ritchie, M.A., LL.B., at 8 P.M.

Saturday, February 24.

Institution of Municipal and County Engineers: South Wales District Meeting. Paper entitled "An Informal Statement of Work required for the Initial Stage of a Town Planning Scheme," by Mr. D. M. Jenkins, borough engineer, Neath, at Gwyn Hall, Neath, at 4 P.M.

Wednesday, February 28.

Carpenters' Hall: Lecture entitled "An Old Kentish House," by Mr. M. H. Baillie Scott, at 7.15 P.M.

Monday, March 5.

Royal Institute of British Architects: Election of Royal Gold Medallist.

Royal Society of Arts: Aldred Lecture I., "Memorials and Monuments," by Mr. Lawrence Weaver, F.S.A., at 4.30 P.M.

CITY PLANNING.

In city planning there is too often apt to be a preference in the mind of the designer for one of two objectives—the city beautiful or the city useful—whereas for true accomplishment these should be as inter-dependent as the warp and woof of an enduring textile fabric. The man of artistic temperament may be tempted to regard his conception of a well-planned city as a collocation of squares, avenues, and vistas, of broad boulevards leading up to civic centres or magnificent buildings, of parkways and places, and all the other elements of civic scenic display. Such a method of city planning has the further advantage that it is easy, compared with the well-studied plan which starts from the premise that "town planning is the art of laying out cities to serve the business requirements, convenience, health, and comfort of the public. It is guiding the growth of a village or city in conformity with a scientific design. It is adapting the physical form of the city to the peculiar needs of its parts."*

Especially to be condemned are those specimens of town planning, too many of which have been seen in English competitive schemes, in which the pleasure of the artist has been satisfied by the production of a pretty, symmetrical pattern on paper. It is scarcely going too far to say that a strictly symmetrical town plan is always wrong. It is quite safe to regard such a plan as justifying the most intense suspicion of its inappropriateness. In every instance the conditions of contours, wind and weather, the business requirements, health, and comfort of the public will vary on either side of the axial line. As T. H. Mawson has said, "Even to design a house or garden ideally, it is necessary to grasp the configuration of the site as a whole, and to catch the atmosphere and traditions of the domain and district with innate artistic perception, or even the rarer response of poetic grace. It is much easier to build and garden well—to impart a grand or stylish air to the mansion, and to make the garden superior and luxuriant—than to build a fine city." Assuredly the town-planner will go wrong if he regards his town-site as flat and featureless as a sheet of drawing-paper, on which he is at liberty to evolve whatever symmetrical pattern his fancy may dictate.

The quintessence of symmetrical city planning is to be seen in the chequer-board and gridiron lay-out of American towns, the negation thereof in the mediæval cities of Europe. The gridiron plan is explained by C. M. Robinson to have had its origin in the city-extension plan of New York, adopted in 1807 by the first City Plan Commission in the United States, as a cutting of the Gordian knot in which long discussion and the pleadings of special interests, the plethora of proposals and counter-proposals had enmeshed the Commissioners. This example was facilitated and emphasised by the Government system of land surveys adopted by Congress on the suggestion of Thomas Jefferson, which mapped out the United States territory into a number of regular rectangles, heedless of contours or natural boundaries. The mediæval towns of Europe, on the other hand, grew up with special reference to the easiest lines of communication and the influence of natural features on defence and supply.

In the planning of a city, the first fundamental is the recognition of the fact that a city is like a great machine. No part is independent. All are interlocked, and to break connections is to injure the whole mechanism. This is because the people of no section or district of the city, however exclusive it may be, can lead, or even wish to lead, an isolated life. They would not be residents of the city if they did not desire or expect to have relations with its other parts.

This leads us to a consideration of the particular influence for each individual city or township of the two great divisions of a citizen's life, his business or occupation and his residence. This influence will not necessarily be identical for all towns, but in every case, it is fairly safe to say, there will be civic centres or focal points, its water front (if any), railroad stations, public buildings, whether Governmental or commercial, for religion or for pleasure. The location of these will largely determine those lines of naturally converging travel which ought to define a city's main traffic routes.

The earlier country highways have generally taken their direction and assumed their relative importance for good and substantial reasons, and the present validity of those reasons should be carefully considered before the supersession of the old lines is ruthlessly determined. Existing country roads, even when rectangular in general arrangement—as, for example, are many such roads in the Eastern Counties—have probably a radial relation to the city nucleus, and may well be taken to form the basis of the extension of the city-street system. As existing and natural traffic channels, we may expect streets developed from country roads to remain important traffic thoroughfares. They may, very likely, require widening and straightening to fit them for their present-day service as main arterial roads.

These main arterial roads, whether adapted from ancient highways or laid out to suit the development of modern requirements, will almost invariably be of radial character, and hence it will be necessary, as the city radius extends, to provide cross-connections, which in

* From a leaflet issued by the Minneapolis Civic and Commerce Association.

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their turn will become main channels for the cross or circumferential traffic. This traffic is not only in itself of sufficient importance to deserve such recognition, but provision for it will relieve the main radial thoroughfares. In most old cities which have grown up fortuitously, as it were, without reference to a pre-considered plan, the want of ready communication between outlying areas on the same circumference is notable. In the case of London, we might say that it is tragic.

The intersections of important traffic highways with one another present, in the planning of new areas, interesting opportunities for the evolution of the city beautiful and the development of secondary civic centres, whether of business or of administration. A combination of radial and girdle lines of main thoroughfares promises, therefore, both practically and æsthetically, the keynote of successful city planning.

A well-planned, and therefore well-organised, city or town should have the location of the areas that are to serve special purposes, as those of commerce, manufacture, or residence, selected for particular appropriateness of character and position. In each instance, having been chosen for a given purpose and designed to fit it, the area's resulting inadequacy for other ends must tend to keep it in the use for which it was planned. This is perhaps, of all the varied sections of a town-planner's work, one of the most difficult. It demands not only a thorough comprehension of present-day factors, but an intelligent foresight of the needs of the future that the growth and development of the city or town may bring.

The determination of such areas will then dictate or suggest the lines of the thoroughfares we designate as secondary roads and residential roads. The lines of roadways being determined, their individual character must engage the city-planner's attention. Arterial; secondary, and residential roads necessarily vary in their requirements. Those of the manufacturing district will be different to the residential roads, and these, again, will vary for high-class residences or for humble homes. The competent city planner must of all things avoid standardisation and rigidity. Our garden-city enthusiasts even are not always on the right lines. It is not every daily-breader who cares to spend his home hours on a garden, still less does everyone appreciate the maximum of garden land that may be allotted to him by a rigid restriction of the number of houses to the acre and an equal division of the acreage.

An excellent review of the many considerations that affect the character of individual roads and of the plotting of sites upon them will be found in C. M. Robinson's "City Planning."* which should receive careful study from all aspirants to a knowledge of town planning.

NOTES AND COMMENTS.

THE war has revolutionised many firmly established principles and knocked the bottom out of many ancient prejudices, and, therefore, the momentous decision of the Council of the Royal Academy is a subject for gratification rather than surprise. By a special regulation for the summer exhibition of 1917, photographs of architectural work will be admissible this year. The size of the photographs must not be less than 12″ × 8″; they should be framed in slight wood frames with or without mounts, which may be tinted. The buildings shown must have been erected within the last 10 years. More than one photograph of the *same* building may be included in one frame. Photographs of architectural sculpture will also be admitted under similar conditions. We have no doubt that both the public and the profession will welcome the presentment of architectural design as it works out in execution rather than as it has been made to appear by clever draughtsmanship.

The relative urgency of the housing problem in England and Scotland respectively may be gauged from the decision of the Scottish Committee, formed to act in conjunction with the English Committee of the National Housing and Town Planning Council, that the English Committee should be asked to co-operate fully with the Scottish Committee in requesting the Government that the apportionment of whatever capital sum was placed at their disposal by way of loans to deal with housing should be on the basis of 11-80ths of the amount put at the disposal of the English Local Authorities. Mr. Aldridge, the secretary of the National Council, estimates the aggregate expenditure to meet the housing shortage in Scotland arising directly from the war at from 10 to 12½ millions sterling. On this basis it looks as if the Government would need to raise another little national loan of some hundred millions to meet the requirements of Great Britain unless they are prepared to facilitate the operations of private enterprise which have been so woefully damped down of recent years.

Sheffield is evidently in real earnest about the city's development, and its recently formed Industrial Development Committee have drawn up a number of very practical recommendations. The committee having been advised that there is no power to carry on a development department at the expense of the rates, recommend that at the first opportunity this power should be included in any further application for Parliamentary powers, the cost, in the meantime, to be defrayed out of the profits of the Tramway Department.

The proposed duties of the committee are defined as follows:—

(*a*) The objects of the committee shall be to watch over and promote the trade, industry, development, and general prosperity of the City of Sheffield, and of the manufacturers, traders, and inhabitants thereof. (*b*) In every way possible promote the establishment in Sheffield of manufactories, trades, and works, and the extension of railways. (*c*) From time to time make inquiries of the landowners of the city and immediate neighbourhood as to what land is available for the purpose of manufactories, trades, and works, and the terms of the selling or the leasing thereof. (*d*) Assist persons who may be endeavouring to secure lands and premises for manufactories, trades, or works, to obtain them from landowners on the best possible terms. (*e*) From time to time procure from the Estates Committee or any other committee of the Corporation information as to what lands and premises the Corporation may have available for the purposes of manufactories, trades, and works, and the terms of the selling or leasing thereof. (*f*) Deal with all matters relating to the advertising of the city. (*g*) Arrange for the publication and issue of official guides to the city. (*h*) Endeavour to obtain for the trading and travelling public railway facilities of all kinds. (*i*) Take steps deemed desirable to obtain postal, telegraph, and telephone facilities for persons residing or carrying on business in the city. (*j*) From time to time to consult and confer with the Advisory Committee and with landowners, manufacturers, traders, and inhabitants of the city, and with the Cutlers' Company, the Chamber of Commerce, and the representatives of labour. (*k*) From time to time confer and co-operate with the other committees of the Council concerning questions arising out of or in connection with the objects of the committee as hereby defined.

On the consideration of the report of the Development Committee by the City Council, the deputy Lord Mayor particularly referred to the question of the housing of the poor. It was one of the points of the scheme. If they went to the east side of the city, where the works were situated, they would find a large proportion of houses lying between the works. He looked forward to the

* "City Planning, with special reference to the Planning of Streets and Lots." By Charles Mulford Robinson, author of "Modern Civic Art," "The Improvement of Towns and Cities," &c. With 70 Illustrations. (New York and London: G. P. Putnam's Sons. $2.50 net.)

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time when the whole of these houses would be removed and their places taken by more works. But the question which had to be solved was to find accommodation for the inhabitants of those houses. That question would have to be dealt with largely by the Estates Committee, but he hoped the Development Committee would be able to assist materially. He hoped at some time Sheffield would be very different from its present condition as regards housing, and that the present undesirable and insanitary dwellings would be replaced by more agreeable surroundings.

A highly important report of the special committee appointed by the Birmingham Chamber of Commerce to consider the commercial and industrial policy of the United Kingdom after the war, with special reference to the recommendations of the Paris Economic Conference, and to the other questions referred to the Government Committee on commercial and industrial policy, has now been issued to the members, having been approved by the council of the chamber.

We are pleased to hear that it is proposed to make a larger use of the canals and waterways of the United Kingdom. The curtailment of the railway service rendered necessary by the demand of the Army authorities for increased rolling stock, &c., has led to further pressure on the railway companies: it is hoped to relieve this by utilising the canals.

It is understood that a joint board will be set up to regulate the various waterways. It will consist probably of representatives of the railway companies owning canals and of the various privately-owned canals. One of the first duties of this board will be to consider the traffic rates on the canals. It is hoped by this means to facilitate the distribution of food and the transport of munitions and raw material.

"The present condition of Art in Ireland" was the subject of a lecture recently delivered before the National Literary Society of Ireland by Mr. Thomas Bodkin, who contended that though Ireland at present was relatively great in the art of literature, and prided herself on the place she held in the art of music, not even her best friends could claim for her a place in the arts of painting, sculpture, and architecture. This was very peculiar, because at one time—in the 8th century—Ireland was ahead of all Europe in these arts, but from that day on to the 18th century they met with a most extraordinary case of arrested development, no great artists appearing in the interval, or until towards the end of the 18th century, and then, without warning, they had a great revival. Domestic architecture, as evidenced in all the Georgian buildings throughout the country, was on, at least, as high a level as in England, and they had beautiful furniture, beautiful glass, beautiful plaster work, and, at the same time, a number of Irish painters who were equal to almost any artists in England. Then, suddenly at the beginning of the 19th century, this revival ceased, and there had never been any indication of a new revival of Irish art since then. Enough had been said to show that the latent possibility was there always, and the question for Ireland was how that was to be developed. He suggested two main avenues of development—First, education of the public which would secure patronage for artists; and, secondly, education of the artists themselves. Contrary to the general opinion, he thought the second the more important problem, for the art of painting and sculpture, and the applied arts generally, differed from literature inasmuch as a prolonged apprenticeship was required. Nothing to help this development was ever done in Ireland until, in 1823, King George III. by Royal Charter established the Royal Hibernian Academy, which had done a great deal for art, in face of great difficulties. The only other training ground for Irish artists was the Metropolitan School of Art, which, as everyone knew, was under the direction of the Board of Agriculture, and interested itself more in the training of men to become teachers than to become artists. He advocated a form of art education which was practised extensively in America and France—education in artistic appreciation in the primary schools and the Universities. Passing from the education of the artist to the education of the public, he dealt with the establishment of the National Gallery in London and other similar institutions, and urged that such institutions tended to forward the interests of commercial men, manufacturers, and traders, and to the encouragement of civic pride.

By the death of Carolus Duran, at the age of 80, there passes away one of the group of notable French painters of the nineteenth century, who will long be remembered as one of the leaders of French art in the last days of the Second Empire and for the first 30 years of the Republic. He was no initiator, but in his sphere he did strong and impressive work, much of it being also agreeable to look upon—a fact which, in the days when it was produced, was looked upon rather as a recommendation than as a drawback.

The battle for Sir Hugh Lane's pictures still continues, and the latest attack by the advocates of Dublin takes the form of a memorial, which has been largely signed by Irish artists and writers, to the Prime Minister, appealing to him, as head of the Government, to give statutory recognition to the terms of the unwitnessed codicil of Sir Hugh Lane's will, bequeathing his collection of modern Continental art to the City of Dublin. The memorial points out that the pictures were originally hung in the Dublin Municipal Art Gallery as a gift, contingent on the erection of a suitable gallery in the city; that, when it was not found possible to fulfil the necessary condition at the time, the pictures were then exhibited as a loan collection in London, and that while there Sir Hugh Lane devised them in a duly executed will to the National Gallery of England. Subsequently, however, he reverted to his original intention, but the codicil to his will was not witnessed. The signatories state that there is no doubt in their minds that Sir Hugh Lane's wish was that Dublin should possess the pictures, and, knowing how universal is the desire in Ireland that they should be returned to the Irish metropolis, they make this appeal to the Government to introduce legislation giving effect to the codicil.

The example of Chicago with regard to the unfettered erection of advertisement hoardings is one that we should like to see generally adopted in this country. The City Council has forbidden the erection of hoardings—or "billboards," as they are called in America—in any residential street unless the approval of a majority of the property owners has been obtained. The restriction has been challenged as unconstitutional, on the ground that it amounts to a deprivation of property without due process of law. The case has been taken from court to court, and has finally been decided by the Supreme Court of the United States, which declares that such action is a reasonable exercise of the city's police power.

The Parliamentary Land Settlement (Scotland) Committee, which was appointed last year under the chairmanship of Mr. William Young, M.P., to formulate proposals for a comprehensive system of land colonisation, having regard to the new conditions created by the war, has issued its report.

The Committee consider that a wide measure of rural regeneration in Great Britain is essential to the future of the nation, and hold that this can best be carried out by a scheme of closer land settlement and the development of small-holding colonies, with holdings of varying sizes. They suggest that in many cases such a proposal can be most economically and expeditiously carried out by absorbing the men into such existing villages throughout the country as on investigation may be found suitable

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for land settlement. They further recommend that the cost of the adaptation of the land for small-holdings should be borne by the State, and the Committee strongly urge that adequate provision ought to be made for making available initial capital for stocking and equipment through the medium of a State-aided Land Bank.

An interesting point in connection with the rights of water companies has been settled, at least in Scotland, by a judgment of Lord Ormidale in an action brought by some master plumbers in Edinburgh against the Edinburgh and District Water Trustees.

Lord Ormidale said the dispute between the parties had arisen in consequence of certain work done by the defendants in the course of giving effect to a request made to them by the military authorities to provide a supply of water to three military camps. It was stated by the plaintiffs that the defendants entered into a contract with the military authorities for the execution of the whole plumbing work in connection with the introduction of water to these camps, and that the whole of this work was of the kind ordinarily performed by plumbers. The defendants pleaded that the work was done at the request of the War Office, in the national interest, and that in respect of the Defence of the Realm Regulations the plaintiffs were not entitled to the declaration and injunction sought. His Lordship could not hold that the pleadings of the plaintiffs were irrelevant to infer the order now asked. He came to the conclusion that except in connection with one class of houses the defendants neither explicitly nor inferentially were entitled to engage in ordinary and original or initial plumbing work at or inside the premises which were being supplied with water. The exception he referred to was work in connection with houses of an annual value not exceeding £10. Otherwise there was no warrant for the defendants coming into competition with persons engaged in the ordinary business of plumbers with regard to water fittings and appliances inside a house or other premises. He could not read the Defence of the Realm Regulations as conferring any right to compel the defendants as an authority supplying water to execute any work which they were not otherwise empowered to perform. They had supplied water when they had brought it up to the premises, and they could not be compelled or agree to provide and fit the apparatus necessary for its distribution and disposal within the premises. His Lordship sympathised with the view expressed by the defendants that such work could be done by them with greater dispatch and greater convenience to the military authorities than by anyone else, and it was to be regretted that in existing circumstances the plaintiffs should have deemed it expedient to take exception on technical grounds to work which appeared to have been in the public interest and without any possibility of material detriment to the interests of the plaintiffs either in the present or in the future. He thought the undertaking offered by the defendants might have been accepted, but as it had not been he must allow proof to ascertain exactly what was the work done by the defendants at the various camps and schools.

ILLUSTRATIONS.

THE NATIONAL INSTITUTE FOR THE BLIND 224-228 GREAT PORTLAND STREET, W.

THIS building, which has recently been completed, comprises the central administrative offices of the Institute: a factory for the production of literature, music and various appliances for the blind; a show room for their exhibition and sale, together with the goods produced by blind workers; a circulating library; a gymnasium and class rooms for teaching physical exercises to the blind; a restaurant; and a hall seating about 250 persons for concerts, lectures and other purposes in connection with the interests of the blind.

Owing to the difficulty of providing for so many and varied requirements within the compass of a site of only 6,000 feet super, and within a height governed by certain restrictions, space could only be found for the hall on the first floor of the building. An essential feature was the provision of an organ, an instrument upon which blind musicians excel, and the instructions required that no sound should penetrate to the offices above and below.

The building is of steel-framed construction and, as a first step, the floor of the hall was formed as an independent raft of steel framing with hollow brick panels on the "Kleine" system, which is entirely insulated from the main cross girders upon which it rests by pads of compressed cork 2½ inches thick in metal frames, and from the walls by a 2 inch space packed with slag-wool. Upon this raft the walls and ceiling of the hall are built up in light steel framing standing clear of the surrounding structure and lined internally with Frederick Jones' plaster slabs with slag-wool backs, which are partly finished in fibrous plaster and Keene's cement and partly covered by oak panelling. The floor generally is laid with compressed cork slabs ¾ inch thick covered with thick cork carpet, while the portion under the organ itself is laid with compressed cork slabs 2½ inches thick with cork pads in metal frames under the heavier portions.

The walls and other surfaces of the main structure surrounding the inner shell are padded throughout with two thicknesses of Cabot's three ply quilting; while round the organ chamber, for which an independent wood lining was preferred to plaster, two layers of this material were attached to the main structure and a third layer fixed to the back of the lining.

The windows are double, the outer forming part of the main structure in the usual way and the inner being attached to the independent lining and glazed with leaded lights bedded in felt.

The result has been so far satisfactory that in the rooms immediately below it is impossible to detect a sound of the organ, which is a three-manual instrument containing over forty stops.

When the hall is in use the ventilation is entirely mechanical, fresh air being drawn from the roof through a filtering screen and discharged, after passing over steam-coils through perforated panels in the backs of the electric-light brackets, a method which renders the openings nearly unnoticeable and overcomes the usual difficulty of blackened decorations. The foul air is extracted through perforations in the ceiling.

It was anticipated that the acoustic properties of the hall would have to be sacrificed to the necessity for making it sound-proof, but it has in fact turned out an exceptionally good room for music.

In connection with the publishing department, the building also contains a stack-room for some 75,000 volumes embossed on the "Braille" system, which are about twice the size of the average letterpress book. This portion of the structure extends 15 ft. below the water which is present in the sub-soil, and is carried out in reinforced concrete, for which Messrs. L. H. Chase and A. C. Auden acted as joint consulting engineers. The stack is of cast-iron with steel shelving and slate decks, and was installed by the Snead & Co. Iron Works of Jersey City, U.S.A.

The electrical equipment, designed by Mr. Henry J. Wagg, includes among other interesting features an automatic exchange for forty internal telephones, and an exchange connected to the Post Office system with some fifty extensions which is worked entirely by a blind operator.

Electric clocks on the "Bowell" system have been installed in every room, which are synchronised daily from Greenwich, and which, by means of a special "programme ringer" not only strike the hours, but ring the times of starting and stopping work throughout the factory.

The ferro-concrete work and foundations generally were carried out by Messrs. Holloway Bros., Ltd., and the superstructure by Mr. William Willett. The quantities were prepared by Messrs. George Corderoy & Co., and Mr. R. H. Kellond acted as clerk of works for the architect, Mr. Claude W. Ferrier, F.R.I.B.A.

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FIRE INSURANCE IN RELATION TO BUILDINGS AND THEIR ARCHITECTURE.*

By SIR ASTON WEBB, R.A.

THIS is a subject that would require a book rather than a short paper even to touch the fringe of it, and a technical knowledge of the history, conditions, customs, and requirements of fire insurance, of which I had better say at once that I am very ignorant.

Insurance of buildings may be said to be of three kinds. There is insurance by the building owner by the method he adopts in constructing his building to resist and protect it from fire, there is the insurance by the State and municipal authorities requiring certain regulations to be adhered to in erecting buildings, and there is the insurance of the insurance companies which enables the insured to recover a certain amount of the loss if a fire occurs.

My business is the erection of buildings which I am naturally anxious should live after me, and in the erection of which I am met at every turn by these restrictions, requirements and laws in relation to fire. These restrictions have in view the prevention of fire and the protection from fire. Most of them have been shown by experience to be necessary and desirable, a few irritating and useless, in my opinion at least, while all have a very large influence on the design and arrangement of buildings. These building regulations, good and bad in regard to fires, have been largely made by the State and municipal authorities rather than by the insurance companies, though I agree most fully as to the beneficial effect on the trade and welfare of the community of insurance, as without it all progress would undoubtedly stop.

At the same time I think you will find that the community took the first step in fire insurance by endeavouring after sad experience to insure the safety of their buildings for themselves as far as they could by improved means of construction.

London, for instance, has been practically wiped out by fire four times, first in 962, secondly in 1087, again in 1212, and lastly in the Great Fire of 1666, only 250 years ago. The story has been told too often to need repetition here. Suffice it to say that the buildings of London were at that time mostly of timber, pitched without, much as the buildings at Staple Inn in Holborn appear to-day, and the streets were so narrow that the projecting storeys on either side nearly met at the top. The fire started in Pudding Lane, Thames Street, and was only stayed by blowing up houses at the Temple, Smithfield, Aldersgate and other points. It consumed five-sixths of the City, it cleared an area of some 436 acres, and destroyed 132,000 dwelling-houses, St. Paul's Cathedral, eighty-nine parish churches, the Royal Exchange, and many other buildings, the value of the property destroyed being estimated at that time at £10,000,000.

This was rather an eye-opener to the worthy citizens of London, who at once began to rebuild not, unfortunately, on Wren's plan, but each on the exact site upon which his premises had previously stood, so that the streets remained narrow and crooked as before. Within four years the rebuilding was nearly completed, and one writing in 1690 records that whereas "before the fire people dwelt in low, dark wooden houses they now live in lofty, lightsome, uniform and very stately brick buildings."

Thus it was for the prevention of fire that the old wooden buildings were replaced by their owners in brick so far as their walls were concerned, and the fact that London has never had another visitation on such a scale proves how efficacious the treatment was.

The whole appearance of London was changed from picturesque wood to somewhat monotonous brick entirely as a means of protection from fire, and as far as I know the principal requirements of fire insurance policies at the present day in the case of domestic buildings insist only on this, that the buildings shall be faced with brick or stone and the roofs covered with slates or tiles, a precaution adopted 250 years ago by Londoners to insure themselves against a similar disaster.

It would be interesting to know who first suggested this change in the manner of building which appears to have been so unanimously adopted immediately after the fire. There were no fire insurance offices then, fortunately for them, and if there had been they would probably have been wiped out. Fire insurance was not, I believe, general till at least fifty years later, and I am afraid therefore it is not possible to credit the offices with the great improvement in construction that then took place. The public took upon themselves their own self-protection at their own cost to avoid a similar catastrophe, under the advice I should say probably of that great genius, Sir Christopher Wren, and though after this reconstruction fires still occurred they were over comparatively limited areas, and thus the idea of insuring on an average gradually came into being.

This example of London in the matter of building was followed generally throughout the country, and we find to this day that every country town possesses many fine, comfortable brick buildings erected towards the end of the seventeenth and the beginning of the eighteenth centuries.

The regulations now in force with regard to buildings are drawn up with the following objects and differ in various degrees of stringency in different parts of the country. I presume all are of some interest to those concerned with insurance. They are:—

Regulations for fire prevention; regulations for fire protection from one part of a building to another and from adjoining buildings; regulations for fire extinction; regulations for fire escape.

Of these by far the most important to the property owner is fire prevention, while fire protection is that perhaps most considered by the municipal and other authorities.

By fire prevention I mean the use of fire-resisting materials in a building wherever possible, not only in its walls, but also in its floors and general finishing, such as the provision of fire-resisting floors and roofs, and the elimination of wood as far as possible, the proper construction of flues and fireplaces, the position and construction of boilers and heating apparatus, gas and electric-light installation, protection from lightning, and the careful execution of all work which, if carelessly done, may lead to the destruction of the building.

It may be said that these matters, while they may affect the building, cannot affect the architecture, yet they undoubtedly do. We have seen how they entirely altered the aspect of London in the seventeenth century. The substitution of concrete and plaster for wood in the construction of floors, roofs, and internal finishings greatly affects the interior appearance and architecture of buildings. In France the carpenter has long been practically banished from buildings, iron and concrete are used for floors and roofs, and wood panellings are far less used than in this country.

Protection from fire is another important point which greatly affects buildings. By this we mean protection against the spread of fire from one building to another when once it has broken out. The most important of these precautions is the erection of brick or stone party walls of specified thicknesses dividing one building from another and carried up a certain height above the roof, a precaution the usefulness of which has been found over and over again.

The Great Fire of London could never have attained to the proportions it did had this precaution been in use at that time.

Wide streets are a great means of protection from the spread of fire from one building to the opposite one. This City of London, I am sorry to say, is a great sinner in this respect, many of the streets not being more than 20 feet to 25 feet wide, which enables the buildings opposite easily to catch alight, and in the past when fires

* A Paper read before the Insurance Institute of London.

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have cleared an area the streets have often been rebuilt of the same inadequate width. The fact is, after a fire everyone is so anxious to rebuild and resume business that there is no time for proper arrangements to be come to.

The precautions against the lateral spread of fire already referred to are of great importance, and I believe in France it is necessary for an owner to effect a certain amount of insurance on the buildings on either side of them.

The provision of iron doors to all openings in division walls is another equally important provision, together with the proviso that large buildings must be subdivided with party walls so that no portion of a building is of a capacity of more than 250,000 cubic feet, or under certain circumstances up to 450,000 cubic feet. The architectural difficulty of the party-walls regulations is the appearance of the wall above the roof; but difficulties are made to be overcome and architects to overcome them.

Another regulation prohibiting all woodwork within 4½ inches from the face of any external wall grievously affected a certain style of architecture which required the sash-frames to be brought to the face of the outer walls. This, however, has been modified in recent years.

The Fire Brigade do, of course, invaluable work in the protection of buildings, but their work hardly comes under my subject.

Preparations for fire extinction do not greatly affect us, though should the use of sprinklers be extended to other than buildings of the warehouse class they would exercise our ingenuity greatly. At present they are confined mainly to commercial buildings where the use of sprinklers externally are, I believe, much relied on, and do undoubtedly present considerable difficulties to the architect. The advantages, however, offered by the companies in the reduction of premiums for this means of protection offer great inducement for their use by the public.

Means of escape from fire interfere probably more with buildings than any other fire regulation I know of, yet they are necessary, though perhaps architects have not yet the full measure of meeting the difficulties. A very general requirement that every building should have more than one means of escape from it often leads to very unsightly external iron staircases to the great disfigurement of many important buildings; in the future new escapes will have to be provided in a more permanent manner inside the building. Stringent regulations are also made as to the width of staircases, the height and width of treads and risers, and the number of steps in a flight, and finally the material of which the staircase is built.

It is hardly necessary to say that staircases are the most important of all means of escape, and should be carefully regulated accordingly, but a staircase filled with smoke, however constructed, is also dangerous, and therefore precautions have to be taken, though these can be, and often are, overdone. Indeed, this class of regulation should be elastic, otherwise great injustice is done and often absurdities asked for.

Canvas shoots and such like means of escape do not affect us much, and are not, I believe, much commended at the present time.

The Fire Brigade again do, of course, invaluable work in saving life which no building regulations can touch. The day may not be far distant when every town building will have its own high-pressure water supply, and be in direct communication with the nearest fire and police stations.

All halls for public assembly, schools, theatres, restaurants, cinema halls, &c., are, of course, under stringent regulations which greatly affect their design and arrangements, though churches and chapels seem singularly free from them. The weakest points of these religious buildings are their organs and heating apparatus, both of which seem to require special precautions.

For factories and large manufactories, mills, and such like buildings, where inflammable materials and explosives are stored, there are again numerous special and stringent requirements regarding their construction, too numerous and unnecessary to trouble you with.

In speaking of these regulations I have been referring to those drawn up from time to time by the London County Council for the London area, the only body outside Parliament that has the power to frame and enforce such laws here, and these form to a great extent the basis for the by-laws in other towns throughout the country, and to a lesser degree in the rural districts also.

The insurance companies, I believe, except in special cases, rely on the public authorities to see these regulations carried out without having further inspections of their own.

Government is its own insurer, and their buildings are exempted from all regulations, though they generally conform pretty closely to them except in the matter of restricted cubical contents.

I have only mentioned in the most elementary manner the principal fire regulations affecting buildings, but they will be, I think, sufficient and perhaps give some idea of the difficulties an architect has to meet before he can design a building suitable for its purpose and seemly in appearance.

We may take it, I think, that the effect of these building regulations, irritating though they sometimes are, have been on the whole beneficial both to architecture and building, and have resulted in a sounder and more substantial method of building which in itself is a gain.

That they have achieved all that is possible in the direction of fire-resisting buildings cannot be claimed, but as they are mainly drawn up and exercised by the State and municipal authorities they probably go as far as the liberty of the subject in a free country and commercial enterprise will allow. Such regulations can only be general, and if made too stringent would undoubtedly entail great and almost intolerable hardships on a large class of speculative building which the community require. For instance, though it would in theory be desirable that all buildings should be of fire-resisting construction, it would in the case of small domestic dwellings so raise the cost of construction as to make their erection at reasonable rentals impracticable, and therefore under present circumstances many an owner says, I shall just do as little as I possibly can under the Building Acts, insure the house, and run the risk of being burnt out. What the average chances are of this happening to him you gentlemen know almost to a nicety. I do not.

Well then, if the State and municipal authorities have gone almost as far as they can, and the insurance companies have no legal powers to enforce building regulations for the better prevention of fires, how can much improvement with the necessary elasticity be obtained? No doubt another Great Fire of London would do it as it did before, but prevention is better than cure, and none of us wish to see again so drastic a remedy. We certainly do not want another Great Fire of London; but were it to happen I believe that, as the last great fire in four years changed London buildings externally from wood to brick, this one would change them internally from wood to concrete, but failing such a catastrophe I think we must look to the insurance companies to help us to educate the public, and they could certainly do a great deal.

I assume, of course, that there is a general desire to prevent fires, though the effort seems generally more to extinguishing fires rather than preventing them. I have lately read an address by the general manager of a great Scottish office in which he pointed out that "if there were no fires there would be no insurance," and "that profits cannot be made without fires." That may be perfectly true, I do not know, but it is never likely to arise.

Some statisticians tell us that the loss in the British Isles alone is £10,000,000 per annum, and, however much we may try to reduce this loss fires will still occur in even the best regulated buildings, and will continue to occur however careful we are; but that the waste

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and misery and loss of life resulting from fires can be still largely reduced I firmly believe, and I feel certain the insurance companies would be found willing to assist in attaining so desirable an end.

The present 1*s.* 6*d.* insurance policy only requires that a building shall be built externally of brick or stone and roofed with slate or tiles, though special regulations are also made in regard to electric-lighting and heating apparatus. These requirements refer to the exterior and leave such important points as the construction of the roofs, floors, wall linings, &c., untouched.

Nine fires out of every ten originate in the interior of buildings, and the material with which roofs are constructed (not only are covered) is a matter of the first importance, as also the construction of floors, ceilings, and wall coverings, the construction of hearths, flues, and fireplaces, and many other details too numerous to mention.

The question therefore arises as to whether it is possible to encourage fire-resisting construction buildings to a larger extent than is done at present.

(*To be concluded.*)

THE DESIGN AND CONSTRUCTION OF INDUSTRIAL PREMISES.

By A. ALBAN H. SCOTT, Vice-President, Society of Architects, &c.

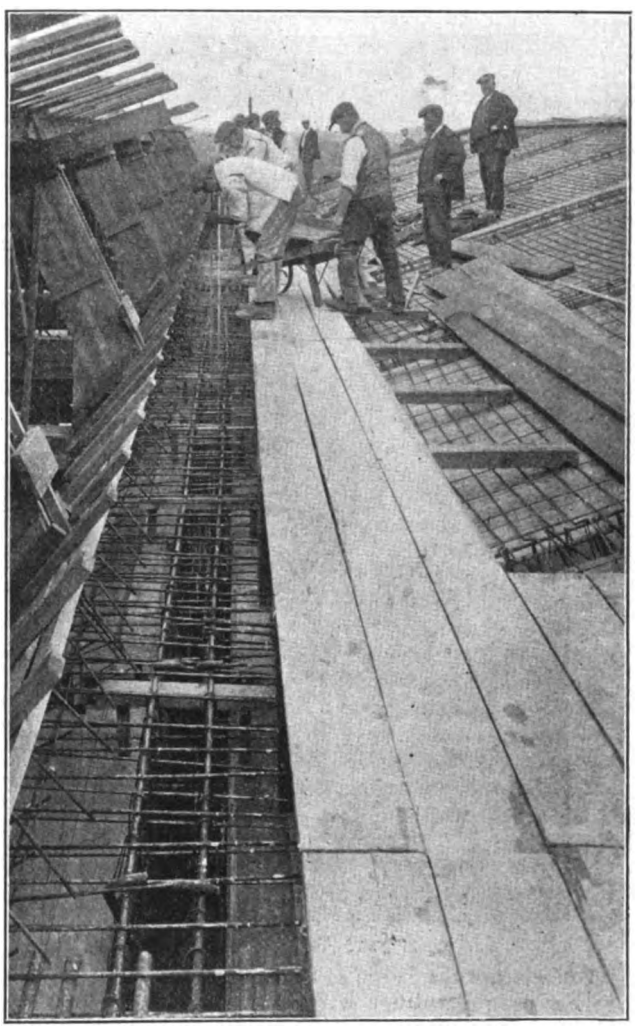
(*Concluded from last week.*)

IN certain businesses upper floors are necessary for the economical working by gravity of the various processes. Where this is not necessary works with one floor only are more advantageous in every way.

In a structure of many storeys in the provinces or country districts (where the principle of framed buildings has not yet been allowed in the by-laws), what enormously thick walls they require, as compared with those in the L.C.C. Acts and Regulations for steel and R.C. framed buildings. There is quite a difficulty in convincing the local authorities that in London we can put nine inch or fourteen inch walls for the ground floor storey in a high building. It is always interesting (and often very expensive to the building owners) to watch how hard the local authorities, even on the borders of London, will cling to their out-of-date by-laws. Would it not be a lasting benefit if the London Building Act and Regulations were adopted for the whole country, subject only to special regulations for such buildings as farm structures?

I had a most interesting case recently, where plans were submitted to the local Council for a factory which were passed—the Surveyor being away. Shortly afterwards, further plans were submitted showing the factory doubled in size, which were also passed; a little later still a further set of plans were submitted, showing another extension, the second extension being accidentally coloured on this set. Much to my astonishment, the last extension was disapproved and also the second extension, the Council stating that although the second had been passed they had the right to reconsider, as the second portion was coloured on the third application and therefore they could treat it as a new application. A curious position had arisen; the first portion was nearly finished, the second portion was well towards completion, and the foundations for the third portion were in. The building generally would have passed the London Building Act, and yet we had verbal notice to pull down. I made an appointment to meet the Surveyor, and whilst waiting for him again read through some of the by-laws and found a most useful clause, which according to my reading gave the Surveyor power to pass practically any building provided he was satisfied as to its stability. I do not know whether he was convinced, but the plans were eventually passed and the building is up as originally designed.

Fortunately for building owners and architects, district council surveyors are generally very reasonable, and so it is usually possible to get a building erected in course of time, and with walls of reasonable thickness. If it were not necessary to have walls at least nine inches thick to keep the weather out (more or less), greater developments would take place regarding walls, particularly those of one-storey buildings. About three years ago an internal wall thirty feet long and twenty-five feet high was erected in brickwork four and a half inches thick, reinforced every course. It is in perfect condition and is actually carrying a three H.P. motor attached to the wall at a height of about fifteen feet. At present there is not a better material for walling than brickwork, and in the majority of cases no material is cheaper for this purpose. Windows in walls nearly always prove an expensive item for upkeep, and in one large works we have now standardised our windows, the size of the glass forming the unit being 1ft. 4in. by 2ft. Any part or the whole can be opened and there is nothing to get



out of order. It is found that this window proves a low cost for repairs. Where a large area of wall glazing is required, it is not necessary to have the whole in form of sashes in which case vertical glazing is adopted, formed of lead-covered steel bars and glazed with quarter inch rough-cast glass, the bars being about 24 inches apart. Similar glazing is used for the roof lighting, in which case some wall windows are desirable to add a little cheerfulness to the shop. Glazing bars made of reinforced concrete have been used and generally found satisfactory.

Various points of detail will be dealt with on the lantern slides.

The heating and ventilating of industrial premises must be considered together; it is but waste of energy to instal the heating plant and then to think of the ventilation.

Speaking generally, the hot-water low pressure

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accelerated system is on the whole most satisfactory, and if this is combined with efficient ventilation with precautions taken, such as hot-water pipes under all roof lights, fresh air intakes, &c., properly arranged so that the incoming air is warmed thoroughly, good and effective results can be obtained.

The method of heating certain buildings by hot-water pipes placed over the workers' heads about eight or nine feet above the floor is in the opinion of the author of this paper the worst and most undesirable form of heating possible.

In all forms of heating it is essential that the feet and lower part of the body should be kept warm, and if this condition is obtained generally, the whole body is warm and active; if, however, the upper part is warm and the lower part cold, dullness and inactivity results.

In the hot-air system the heated air should be discharged about 12 inches above the floor. Grating should be arranged so that no dust can accumulate in the ducts and thus be discharged with the air, and it is better to have a larger discharge of hot air at a lower temperature rather than a smaller quantity at a higher temperature. For ordinary industrial premises the air should be changed three to five times per hour. This entirely depends, however, upon the work carried on. In one case, with very special conditions, we are changing the air about twenty times per hour.

Where only partial ventilation can be installed, it is better for the fresh air to be put into the building and the outlet take care of itself rather than the air extracted and the fresh air left to chance.

The temperature required in factory premises also varies according to the nature of the work carried on, but a good average is 57° F.

The artificial lighting of premises must be considered for each particular department, but in no case should the naked light be in a direct line with the workers' eyes—indirect lighting should be used wherever possible. The half-watt lamps are now used with extraordinary good results, and if these are used as general lighting and are properly planned very little local lighting will be required.

Dilapidations do not strictly come under discussion this evening, but in arranging leases it should be clearly understood that the tenant has the right to move the whole of his plant, but that the premises must be made good where the plant is so removed.

Dilapidations so far as industrial premises are concerned may be a serious matter to either landlord or tenant, and the interests of both parties require to be carefully guarded by their respective architects.

It is most desirable that an annual inspection should be made by the architect of the whole of the buildings, and report submitted to the owners, exactly as an auditor does each year with his accounts.

In designing works some regard must be had to the future assessment for rateable value of the works. Some clients ask when considering sites if certain districts rate machinery. It might be broadly stated that no districts rate machinery, but all districts should take machinery into account as enhancing the value of the hereditament on which it is placed. Much valuable time and money has been spent in law cases to find out the proper way to take machinery "into account." Some overseers ask for a list of all machinery and cost of same, and others seem to be at a complete loss in dealing with machinery. It would be most useful if the recommendations from the Royal Commissioners on Local Taxation (May 1901) were made the law, the effect of which are:—

"That in estimating the rateable value of any hereditament occupied for trade, business or manufacturing purposes, there shall be excluded from the assessment any increased value arising from machines, tools, or appliances which are not fixed, or are only fixed that they can be removed from their place without necessitating the removal of any part of the hereditament. But the value of any machinery, machine, or plant used in or on the hereditament for producing or transmitting first motive power, or for heating or lighting the hereditament, should be included."*

It often happens that firms who erect good and lofty



* See Ryde on "Rating."

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buildings giving much better conditions for the employees are penalised in the matter of assessment, owing to the lack of a sense of proportion in the people valuing; for instance, the rateable value is sure to be put much higher on a building with lofty ceilings and where the walls are nicely painted with a light colour and the place kept clean, than on a building of the same floor area, but of the usual low height and indifferently kept.

The old-fashioned way of taking the cubic foot as the unit for value is, I am afraid, partly the cause for this. The foot super of actual effective floor space is really the only proper unit—both as to use and cost. As an example, take one of the buildings illustrated, which is 300 feet long and 70 feet wide and 18 feet high to roof tie; the cost of this building was about £5,500, but if the height were reduced to 12 feet the deduction would only be about £200, the usefulness of the building being the same; therefore the rateable value should not be greater for the 18-foot building than for the 12-foot building.

I submit that it is more reasonable to put a high assessment on a set of cramped dirty w.c.s not fit for use than upon a suite of w.c.s, lavatory basins, cloak-rooms, and other conveniences provided for the employees, and in a building of such a size and height that they can be kept properly clean and sweet.

It is necessary for the overseers to take carefully into account all points before arriving at a value for assessment of industrial buildings. Often in a building costing many thousands of pounds, with the judicious spending of a few extra hundred pounds the general effect is greatly improved and the works made more cheerful, but it is not encouraging if the rateable value is unduly increased thereby.

It is submitted that the assessment on industrial buildings should be arranged on a sliding scale in the inverse ratio to the consideration given to the health and conditions of the employees in the design and upkeep of the building, thus encouraging those employers who have hitherto ignored this question to pay more attention to this essential part of their business.

CIVIC ARTS ASSOCIATION.

The committee of the Civic Arts Association have recently been considering two important questions connected with war memorials—namely, the question of commissions for such memorials in relation to artists now at the Front, and the artistic difficulty presented by the attachment of any large number of names to any work of art. They have accordingly decided to circulate the following note in the hope that it contains a suggestion which may be useful to the public.

Owing to the absence of nearly all our younger sculptors and craftsmen on active service it is desirable that the execution of memorials to the fallen should be, as far as possible, postponed until the conclusion of the war, when it is hoped we shall have among us again those artists of genius who have temporarily sacrificed their art for the nation's cause. To such as these, opportunities for resuming the exercise of their profession will be doubly welcome; and inasmuch as a work of art, consciously or unconsciously, reflects the spirit and experiences of its creator we may reasonably hope that the artist who has tasted the solemn glory of the battlefield will thence derive noble inspiration for the creation of war memorials. Artists who are, unhappily, over military age will assuredly welcome the reservation of commissions in order to assist their brethren on their return to civil life; and, indeed, the volume of memorials, sadly increasing, is already of such magnitude that the artists still among us are unable satisfactorily to cope with the demand.

Meanwhile the natural desire straightway to commemorate our young men's sacrifice may be met by placing a wreath, with a scroll of honour attached, on the position assigned to the memorial in church or public edifice; or a memorial book containing their names might be written and either form in itself a sufficient and satisfactory memorial or be auxiliary to any other to be subsequently decided upon.

Places of worship, town halls, and public libraries will afford suitable depositories for memorial books of this nature. All such scrolls and books should be written in comely script—themselves works of art—and for this purpose use might be made of the students of our technical schools who have been trained to do these things with simplicity and dignity.

These suggestions will not hinder the planning of more conspicuous or more permanent memorials. On the contrary, time and opportunity will be afforded for careful estimation of the funds available; for due deliberation in the choice of the location and character of such memorials, to the no small relief of incumbents and others who are already concerned with the menace to the walls of their parish churches of a crowd of hasty and ill-assorted tablets and stained glass. Moreover, long inventories do not lend themselves to certain memorials, such, for instance, as a village cross, fountain, or wall seat; and the business of cutting or painting these is complicated by the need of leaving a space for more names to come. A few blank leaves in a book, or a space on a scroll, would sufficiently meet this difficulty, and on the permanent memorial itself, if suitable, some few words might be inscribed to the effect that it is erected "in memory of those of this parish" or, as the case may be, "who gave their lives for us in the years 1914, &c., &c. Their names are written in the memorial book of our church" or "town hall" as it may happen to be.

MONUMENTAL MEMORIALS AND TOWN PLANNING.*

By Professor S. D. Adshead, M.A., F.R.I.B.A.

(Concluded from last week.)

Time will not admit of more than a reference to sculpture and its use in connection with the war memorial, but I would strongly urge that symbolic sculpture, which alone can express those traits of character and mental aspects that are deep, enduring, permanent and noble, as opposed to those which are incidental, is the only type that can be suitably used in connection with the war memorial.

But may it not be stated that of all undertakings war is a business of passionate display, and in memorialising it is not this the one occasion when a sculptor may indulge in realism? If he has no deeper sentiments to record than those depicted in the frenzied excitement of hustling men and horses struggling to kill each other, I would certainly say that he was justified in adopting such a method. But surely the presentment of war goes deeper than this outward kaleidoscopic view of the clash of arms. Is there not a deeper pathos in the inner aspect of such scenes? Is not a presentment of the awful tragedy of it all, as seen and felt by thoughtful men, more impressive and enduring than the literal recitation of the incident itself? The great value of symbolic sculpture lies in its being able to embody in the most convincing manner those intangible phases of character that are so well conveyed by music and perhaps colour.

In a war memorial where sculpture is to play an important part, one of several distinct methods of treatment may be adopted. There is first of all the treatment that one is only justified in using on the most important occasions occurring in connection with the symbolic presentation of patriotism. Probably this is best interpreted by the erection of a colossal figure such as that of Liberty at New York, that of Bavaria at Munich, or that of War at Hamburg. With such a treatment the figure is best isolated, and any subsidiary sculpture should be kept extremely subdued. A great figure

* A Paper read before the Town Planning Institute, February 9.

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standing in isolated grandeur is one of the most impressive creations that it is possible to conceive of.

Another treatment, much less common, but which is, I think, worthy of more consideration than it has received, is that where a single figure or group of figures stands at the base of a monolith obelisk or colossal stone. Two conspicuous examples, but treated quite differently, are the Gambetta Monument at Paris and the Parnell Monument in Sackville Street, Dublin. Nothing could illustrate better the divergent sentiment of two monuments, each of which memorialises a patriot. In the Parnell example the gaunt monolith seems to suggest in an indescribable way the poverty but ancient grandeur of Ireland, and notwithstanding the realistic treatment of Parnell, a treatment difficult to dispense with where portraiture is essentially part of the scheme, the monument regarded as a whole is solemn and dignified. Compared with it the Gambetta group, which loses the sustaining background of elemental mass, may be likened to the effect of an explosion in a sculptor's yard. But it must be remembered that the Dublin example was designed and executed by St. Gaudens, and is really an American work, whilst in the matter of sentiment the French example represents French art at its very worst.

Another type of monument is the group on a pedestal. Probably no finer example is to be seen than the monument to Marshal Moncey in the Place de Clichy, Paris, by Guillaume, architect, and Doublemard, sculptor. Very similar in sentiment, and no less beautiful, is the monument at Mars le Tour.

But of all treatments the most common will necessarily be the single figure on a pedestal, and here a word on the pedestal itself. The pedestal should, as it were, belong to the figure, and should always be regarded as a detail of the surrounding architecture and treated as part of it. A modern tendency is to make it as bare as a butcher's block. This is in good taste when it supports a realistic figure, but the symbolic figure, architecturally treated, demands an architectural base. I know of no finer example of this oneness of figure and pedestal than is to be seen in the Schiller monument at Stuttgart, by Thorwaldsen. Very different is the miserable pedestal to Prince Leopold von Denau, by Von Tattan, one of the favourite architects of the Kaiser, and a Professor at the Fine Art Academy at Cassel.

Of equestrian treatments, one can only say that the subject is too big to be dealt with now, and I do not think that the horse will figure conspicuously in the war monument of the future.

Time will not permit my doing more than remind you that the war memorial may take the form of a building consecrated to the heroic dead. Such a building is the Allegheny County Soldiers' Memorial at Pittsburg, evidently based on the tomb of Mausolus at Halicarnassus. But perhaps the best-known of modern examples is the Valhalla at Ratisbon, from the design of Klenza. The idea of building the Valhalla at Ratisbon originated with the late King Louis of Bavaria. Its date was 1830, and it was erected as a national monument and temple of fame for Germany. In it have been placed statues and busts of Germanic heroes, statesmen, sages, poets, artists and musicians from Arminius the conqueror of the Romans down to Blucher and Schwarzenberg.

More recently many other similar war halls have been projected for erection in Germany. A few of these have been carried out, but the majority have not got further than a model in clay or a sketch in chalk. Whether they will still materialise remains to be seen.

And here let us leave the memorial and consider its setting. It is generally recognised that monuments which have been erected in this country during recent years have suffered very much from the lack of a good setting. These things are better understood in France. What is the reason? In Paris, streets and avenues have for the most part been designed. Their angles and junctions are symmetrical, and monuments placed therein take their place quite naturally. There have been times during the growth of London, and to a less degree that of the provincial towns, when streets and squares were laid out similarly. But for the most part our English towns have no composition, and only the cohesion seen in a motley crowd, where every individual is seen pushing his interest in his own way. Under such circumstances monuments cannot be said to fit their sites in orderly way. They either occupy odd corners or odd junctions of streets, and under our existing system of administration their arrival is as often unexpected as their site is unprepared. So that the general public, or at any rate that section of it who are interested in such matters, are under a constant apprehension as to when and where a monument is to be expected next. Of all public undertakings, the placing of monuments is one that ought certainly to be referred to the general body of town planners, architects and sculptors. We are a democratic nation, and possibly we may soon find ourselves in the position of a very strong democracy. In the matter of the design and placing of public monuments we are either in the hands of the public authorities, who have not as yet distinguished themselves in the production or discovery of artistic genius, or else we are at the mercy of some well-meaning though untutored philanthropist who has money to spend. There are places in London and also in our provincial towns where monuments can, as part of a civic composition, take their place, but in most cases they can never do more than fill a gap. Monuments in towns require prepared architectural sites. In the best examples of civic design the monument and its surroundings have been considered together. It would, of course, be impracticable, and in most cases quite impossible, to put a new facade to the buildings that surround every important monument. But it is almost a platitude to say that they ought to be designed together. As a matter of fact, every building to-day is designed as a frontispiece. Nobody cares to spend money on backgrounds. The result is we get no civic compositions, and never will do, unless our democracy becomes so strong as to recognise that there are chosen moments when the individual must bow to the dictates of an autocracy. It is an open question whether after the war, with the democratic spirit that prevails in this country, and its impoverished conditions, the national inclination will be in favour of spending huge sums on one or more national monuments, but it is quite certain that monuments costing, say, from five to twenty thousand pounds will be erected not only in London but in every provincial town. If these are to be placed to the best advantage it is of the greatest importance that consideration be given to this question of site.

After the death of Queen Victoria practically every town in England erected a statue to memorialise her reign. The best of the then vacant sites were then monopolised, though perhaps not always to the best advantage. It was much more difficult to find a site for King Edward.

It would require a very lengthy research into history to understand how it is we have fallen so far short of the success that has been attained as regards similar undertakings in other countries, and especially in France. In the days of the Louis, between the king and his artists there were connoisseurs like Le Brun, and in the days of ducal influence in this country there was a much broader understanding of the arts on the part of those who controlled their practice, and a much closer intimacy between practitioner and patron than can possibly exist under conditions as they prevail to-day. Let us note, for instance, how Louis XV. laid out the Place de la Concorde at Paris.

Patte, who has produced a folio on this work, tells us with that punctilious flow of loyal utterance assumed by writers of the day, that the towns of France, and especially Paris, desirous of expressing their attachment and loyal devotion to their sovereign, decided to erect statues to his honour. In Paris a great competition was inaugurated, each competitor being asked to suggest a site and its treatment. The competition resulted in the

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production of some seventy or eighty very ambitious schemes. His Majesty, after having examined them, seeing that it was not possible to put into execution a design without doing away with roads and sacrificing the convenience and interests of numbers of his subjects by the destruction of innumerable houses, and filled with generosity towards his people, made a present to the town of a large piece of land, the Place de la Concorde.

A further competition was held for a monument on this site. It is too long a story to follow the proceedings in detail, but ultimately none of the competitors received the commission of carrying out the design, the work being finally entrusted to Gabriel, the King's own architect, who made such use as he could of the ideas embodied in the competitive designs. There was no doubt much wisdom, mixed with what in the light of to-day would be considered unprofessional practice in what was done, but it is a revelation to see the enormous importance that was attached to the preparation of a site for a piece of sculpture.

But the Place de la Concorde was not the only work of the kind undertaken at this time in France. During the reign of Louis XV., Bordeaux, Rennes, Rheims, Rouen, and Nancy each erected equestrian statues of their sovereign, and created magnificent "places" to receive them. Bordeaux, setting the example, originated in 1728 the idea of constructing the beautiful Place Royale to receive the King's statue. Rennes being almost destroyed by a great fire in 1720, a plan for rebuilding was prepared by Robelin, the King's engineer, and Gabriel was sent by the King to design the new "place" and its embellishments.

Rheims commenced its Place Royale in 1766 from the designs of Gendre, an engineer, and Pigaille, the sculptor.

At Rouen, Carpenter was made architect for the Hotel de Ville, and it was upon his advice that a Place Royale was constructed in front of it, with new façades.

Nancy, as is well known, is a city containing the most perfect embellishments in the world.

And here it may be of interest to note the circumstances that brought into being our own Trafalgar Square.

When Wilkins had completed his National Gallery, he was asked by the Commissioners of Woods and Forests to lay out Trafalgar Square. This was in the year 1837. He died, however, when the work had hardly commenced, and the commission fell to Barry in 1840. But previously, on June 2, 1838, an advertisement was inserted in the "Times" by a Nelson Memorial Committee for a design for a Nelson Monument to be placed here, a site for the monument having been given by the Commissioners of His Majesty's Woods and Forests. The monument was to be erected out of funds obtained by public subscription. There were no conditions other than those contained in the advertisements, but one hundred and eighteen designs and forty models were submitted. After considerable delay and hesitation resulting from the incompetence of the judges and their diversity of opinion, there being no professional assessor, and the holding of a second competition, the design of Railton for a Corinthian column was chosen. But there was still uncertainty as to the propriety of imposing so gigantic a column in the Square. A select committee sat, and the evidence of every architect of distinction was obtained, including that of Barry, the architect of the Square. Barry was amongst those who disapproved of the column, his reason being that it would dwarf its surroundings. Others considered that the column was so important that this would not matter. Before a definite decision was arrived at, however, the businesslike Railton had one thousand pounds' worth of concrete put in as a foundation, and there is no doubt, had it not been for Railton's insistence, the misgivings which were general would never have been overcome.

I think there was value in the expressed opinion of the time that its importance justified it in being a more commanding feature than the buildings by which it was surrounded. Its greatest fault is its coarse and unsympathetic detail, and generally the poorness of its design. My own feeling about the Square is that the modern critic who regards it as one of the features of London most needing re-modelling is not justified in his view. Personally I feel that its general lay-out is in much better scale, and shows a much greater breadth of treatment, than we would be likely to obtain if it were re-designed to-day. It is a pity that the detail is so like undecorated cast-iron, and the sculpture so dull and uninspired.

Opportunities may occur for other great civic improvements after the war. When London's new avenues are constructed we should see to it that they have that architectural splendour which is compatible with their importance. Here, and in the case of the proposed new Charing Cross Bridge will be afforded an opportunity for setting up an arch, for erecting columns, or for laying out a "place." Would that we could emulate the little kingdom of Belgium, with its avenue and Arc du Cinquantenaire at Brussels.

And, finally, let me remind you that one of the most important points to be observed in the design of the "public place" is that of preserving an unobstructed spaciousness. Our towns are rapidly increasing in size; they should also increase in scale and dignity.

Many of our provincial towns containing populations of 100,000 and more were but villages at the commencement of last century, yet in the matter of disposition they still retain their village character and practice village habits. We should see that greater dignity is secured, and more orderliness observed. A view of the principal street in Newcastle explains what I mean. Consider the intrusion of lavatory enclosures, cabmen's shelters, tool sheds, sand boxes, &c., that are everywhere allowed to obstruct and disfigure our public "places," and without any consideration whatever as regards their forming the details of a civic scheme.

We are living in an age of town planning and town improvements, and therefore I would impress upon those in authority in our provincial towns and boroughs the advantage of boldly adopting the policy of the French in the reign of Louis XV., even though as a democratic undertaking it may have to be carried out in a more modest way. I would suggest that, instead of searching the town for an odd corner that perchance may have been overlooked when the last search was made for a site for the Queen Victoria Memorial, that, instead, a site be provided by the reconstruction of a worn-out area. Let every town of moderate size in England memorialise the part its heroes have taken in the war in the reclamation of a slum, in the erection of an up-to-date group of buildings, either commercial, as shops, or domestic, preferably the latter, and in the centre, as a climax to the whole scheme, let it place its war memorial, which incidentally will form a token of the new interest in town life and create a real civic awakening.

Correspondence

[The Editor will not be responsible for the opinions expressed by Correspondents.]

Coinage Decimalisation Bill.

SIR,—I would invite your attention to a draft of a proposed Bill for the Decimalisation of our Coinage, published in the "Times" Trade Supplement of February 1917, for general information. The draft is, apparently, to be circulated to British Chambers of Commerce only, when, if approved, the Bill will be laid before Parliament. The question concerns other people besides members of the Chambers, and the terms of the Bill are well worth consideration. Compulsion is intended, for there is a clause making it illegal to use any other than the decimal "coins of account" as such, and making void any document in which, after the proposed date of the Act (1917), any other coins are mentioned. I may add that there

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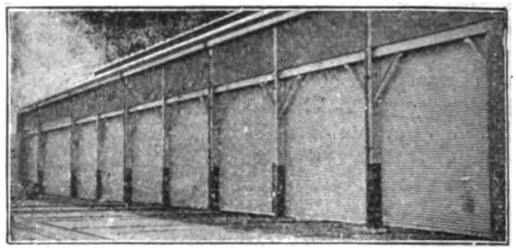
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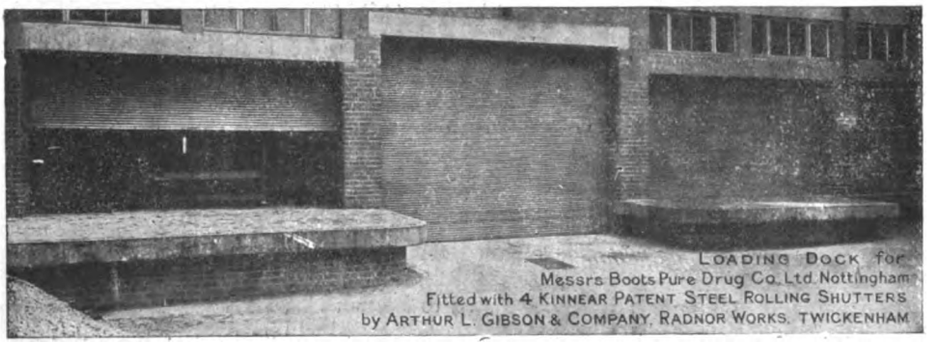
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is a very strong feeling among engineers and manufacturers that the Decimal Association is not "playing the game." The engineering professions and working classes are straining every nerve and devoting all their energies, mental and physical, to beating the enemy in munitions, ships, plant, &c. The decimal agitators chose this awful time, when their strongest opponents are either nearly worked to death at home or in the trenches abroad, to press the passage of an Act which the engineering classes of this country think unfair, injurious, and unnecessary. Without munitions, not human courage, gold, nor credit are of avail. If any of the British deserve consideration, who but those men who have, for the *n*th time in our island history, consecrated the British inch, the British pound weight, and the British penny, with their blood and their sweat? Our export trade depends upon the engineer and the manufacturer, and financiers and merchants are willing enough, when it suits them to do so, to proclaim that our exports must at least balance our imports, yet the same commercial community cannot refrain from constant nagging at and continual meddling with the units the engineering classes find essential to their business.

The first schedule at the end of the draft Bill ought to be a revelation to most people. It is proposed to retain the sovereign and half-sovereign as they are. We are to have four-shilling and two-shilling pieces, and to abolish the crown and half-crown. The shilling is to be called a 50-cent piece, and the sixpence a 25-cent piece. So far, the coins seem merely to change their names; but, in spite of metric bounce that halves and quarters are permissible, we are to be deprived of the useful half-crown.

The penny and farthing (as we know them) are to be abolished, and in their place we are to get a British dime of 2.4*d.*, a British half-dime of 1.2*d.*, a new penny of 0.96*d.*, a new halfpenny of 0.48*d.*, and a British cent, or new farthing, of 0.24*d.* That is, 12½ pennies will make a shilling, an "awkward, vile, intolerable, clumsy" number, worse, if anything, than the "5½ yards" which metric advocates so much object to as making the British 5-metre rod, pole, or perch! Further, no dealer in his senses could possibly take 0.96*d.* for an existing pennyworth; so, accepting the above two practical objections as insurmountable, it seems certain that the actual new penny must be the 5-cent half-dime, valued at 1.2*d.*!

Your readers will notice that the smaller coins only are affected, and, with them, every small transaction. The poor, and men and women of moderate means, will pay for the privilege of decimalisation of the British coinage. Fluctuations in prices do not affect the issue, as the great statesman, Mr. Gladstone, plainly saw. Whatever the current prices at the time of the passing of the Act may be, the new penny will NOT be accepted as the equivalent of the present penny; and the next coin is nearly a penny-farthing, in present values.

The most curious thing in the whole tangle is the inability of decimalists to perceive that for the purposes of accounting of all kinds, for wholesale and foreign trade, and in large transactions they possess an invaluable decimal currency already. If the sovereign is divided into 1,000 imaginary cents of account, NOT COINED, the matter is perfectly clear. Sums can be stated, and books kept, in £, florins, and decimals of florins. For practical use, in home payments of all kinds, there would exist the sovereign of 1,000, the half-sovereign of 500, the crown of 250, the half-crown of 125, the florin of 100, the shilling of 50, the sixpence of 25, and the threepenny bit of 12½ "cents of account." For smaller sums only the practical equivalent for a cent would be an existing farthing. We merely divide the threepenny-bit into twelve convenient instead of 12½ inconvenient parts.

There is no case at all for "decimalisation" in either British currency or weights and measures. We have everything necessary for working in tens in both systems already. The agitation is purely artificial.—I am, Sir, yours, &c.,

E. A. W. PHILLIPS, M.Inst.C.E.

Hove: February 15, 1917.

BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

ENGLAND.

BUCKINGHAMSHIRE.

High Wycombe.—Foundry, Queen's Road: additions for Messrs. Dexter & Co.

ESSEX.

Chelmsford.—Business premises, corner of Writtle Road and Crompton Street: extension for Messrs. Crompton & Co., Ltd.

House, Rosebery Road, for Mrs. G. W. Smith.

Walthamstow.—Factory, Blackhorse Lane, for the Associated Equipment Co., Ltd.

Factory, St. Mary's Road: addition. Messrs. Hobden, A.R.I.B.A., & Porri, architects. 37A Finsbury Square, London.

Factory, Shernhall Street. Messrs. Davis & Emanuel and H. C. Smart, architects, 2 Finsbury Circus, London.

Vintry Works, High Street: additions for Mr. A. G. Barton.

HAMPSHIRE.

Bournemouth.—"Lansdowne" Hotel: alterations for Mr. C. H. Ship.

"London" Hotel: additions for Messrs. Watney, Coombe & Reid.

"Staffield House," St. Michael's and West Cliff Roads: additions for Mr. Cooper.

Nos. 38 and 38A Seabourne Road: alterations for Mr. A. J. Abbott.

HERTFORDSHIRE.

Letchworth.—House, Sollershott East: extension for Mr. D. Crawley.

LANCASHIRE.

Ashton-under-Lyne.—The "Music Hall" Inn, Welbeck Street: alterations for Mr. J. Bancroft. Mr. Johnson, architect.

Atherton.—The "Bull's Head" Hotel: extensions for Messrs. G. Shaw & Co., Ltd.

Coniston.—House: addition for Mrs. Barrett.

Gleaston.—House for Mr. T. Simpson.

Kirkby.—House, Sautergate: additions for Mr. R. Tyson.

NORFOLK.

Great Yarmouth.—The "Gorleston Cliff" Hotel: rebuilding for Mr. A. George (£30,000).

NORTHAMPTONSHIRE.

Northampton.—Engine house, Doddridge Street, for Messrs. Beard, Brown & Co.

Factory, St. Andrew's Street: alterations for Messrs. Stevens & Co.

No. 23 Great Russell Street: alterations for Messrs. T. Manning & Co., Ltd.

No. 83 St. Giles' Street and No. 31 Abingdon Street: alterations for Messrs. A. R. & W. Cleaver.

Stores, Albert Street: additions for Messrs. W. Wren & Co., Ltd.

SUSSEX.

Bognor.—Isolation hospital: proposed caretaker's cottage.

Brighton.—No. 86 Marine Parade: conversion into flats for Mr. F. Rendell.

Works, Lewes Road: extension for Messrs. Allen, West & Co.

WORCESTERSHIRE

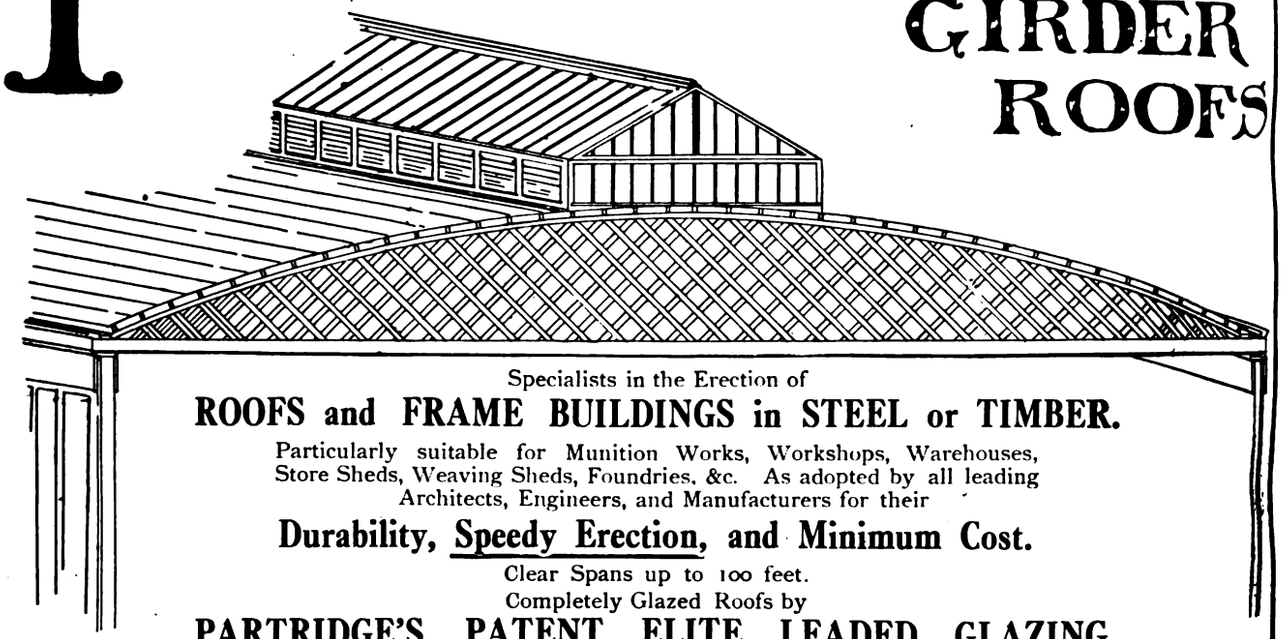
Kidderminster.—No. 20 Church Street: alterations for the London City and Midland Bank, Ltd.

YORKSHIRE.

Barnsley.—The "Stores" Inn, Shambles Street: alterations, &c., for Messrs. T. Berry & Co., Ltd. (of Sheffield).

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THE ARCHITECT

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FORTHCOMING EVENTS.

Monday, March 5.

Royal Institute of British Architects: Election of Royal Gold Medallist.

Royal Society of Arts: Aldred Lecture I., "Memorials and Monuments," by Mr. Lawrence Weaver, F.S.A., at 4.30 P.M.

Wednesday, March 7.

Royal Institute of British Architects: Conference on "The Control of Street Architecture," to be opened by Sir John Burnet, R.S.A., LL.D., at 3.30 P.M.

Royal Archæological Institute: Paper entitled "The Original Castle of William de Warenne and the Early History of the Priory of St. Pancras," by Mr. A. Hadrian Allcroft, M.A., at the Society of Antiquaries, Burlington House, at 4.30 P.M.

St. Paul's Ecclesiological Society: Lecture entitled "The Exterior of Lincoln Cathedral," by Mr. G. J. B. Fox, at the Chapter House.

Carpenters' Hall: Lecture entitled "Traditions of Mural Painting," by Mr. George Clausen, R.A., at 7.15 P.M.

COMMERCIAL AND INDUSTRIAL POLICY AFTER THE WAR.

WE briefly referred last week, in "Notes and Comments," to the Report of a Special Committee appointed by the Birmingham Chamber of Commerce to consider the Commercial and Industrial Policy to be adopted by the United Kingdom after the war. We propose now to deal more fully with this report, the recommendations of which, speaking generally, may truly be said to formulate the charter of the future commercial and industrial existence, we will not say supremacy, of the British Empire.

Whilst the considerations of the committee have not been restricted thereto, they have special reference to the recommendations of the Economic Conference of the Allies held in Paris on June 14, 15, 16, and 17, 1916, and to the other questions referred to the Government Committee on Commercial and Industrial Policy, viz.:—(*a*) What industries are essential to the future safety of the nation and what steps should be taken to maintain or establish them; (*b*) what steps should be taken to recover home and foreign trade lost during the war and to secure new markets; (*c*) to what extent and by what means the resources of the Empire should and can be developed; and (*d*) to what extent and by what means the sources or supply within the Empire can be prevented from falling under foreign control.

The basis of the whole matter is rightly expressed by the committee when they point out that the position before the war was that Germany had for many years been preparing for a military and commercial domination of the world. For this purpose she set to work to acquire, in general, a leading position in commerce, with a control of those industries which were necessary for the military side of their policy and the consequent deprivation of the rest of the world of what would be necessary for defence when attacked. This control, which rendered their military position strong, equally fortified their commercial position.

Here we have in a nutshell an indication of the whole root principle of guarantees for the security of freedom from German domination not only of the British Empire, but of the whole world, civilised and uncivilised. The peaceful penetration of Germany in commerce is directed to no other end than her military overlordship. The clearly defined aim is "Deutschland über alles," with the rest of the world in the present position of Belgium.

Before dealing with the Economic Conference of the Allies at Paris, the committee make some recommendations of the highest importance: (1) That in order to secure the industrial and commercial efficiency of this country the first and most necessary reform is an alteration and improvement in the relations between capital and labour, whereby labour shall produce as much as possible and be remunerated at standard rates for all increased output; (2) that every effort should be made between organised bodies of employers and workers to arrive at mutually satisfactory terms of agreement; (3) that every encouragement should be given by the Government to traders to organise themselves in their several trades.

These recommendations touch fundamentals of vital importance. If this country is to hold her own in the contest after the war there must be between capital and labour co-operation instead of conflict, amongst traders combination in place of competition.

The recommendations of the Economic Conference of the Allies group themselves under three categories, viz.: (1) Measures for the war period; (2) transitory measures for the period of commercial, industrial, agricultural, and maritime reconstruction of the Allied countries; (3) permanent measures of mutual assistance and collaboration among the Allies. The measures suggested for the war period are mostly already in force, and the committee therefore pass on to the consideration of the two remaining categories.

The first of the transitory measures with which they deal concern restoration for destruction, and under this heading the report recommends "an enforceable undertaking by the enemy to make the required restoration," and advocates that this restoration should be made in kind for raw material, coal for coal, metals for metals, and so on; for manufactured material, a discriminating demand, upon expert advice, for restoration in kind or in equivalent money value; for the mercantile fleet, ton for ton out of an approved tonnage in Allied, neutral, or enemy ports.

The next subject is that of commercial treaties, and the committee recommend the withholding of most-favoured-nation treatment from the enemy countries for not less than seven years and equal or reciprocal commercial treatment of all the Allied countries.

For the conservation of the natural resources of the Allies it is advised that full particulars of these should be prepared by the Allied Governments, that all natural products should be distributed under a preferential scheme, that enemy subjects and persons of enemy origin should be prevented from either directly or indirectly any control in the commerce or industry of the Allied countries.

Dumping is to be prevented by direct prohibition of import, except under licence, of enemy manufactures and by the imposition of Customs duties countervailing the difference between the invoice price of imports of enemy origin and the fair home market value.

With regard to shipping and navigation laws the committee support the position adopted by the President of

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the Board of Trade on January 10, 1916, that no privileges should be given to foreign shipping which were not enjoyed by our own and that no subsidised foreign ships should be allowed to make use of our ports and obtain the benefit of harbour facilities while escaping the payment of harbour dues which have to be paid by British shipping. The committee also recommend that trade between the ports of the Allies should be regarded as "coastwise," that no enemy shipping should be permitted to enjoy such trade and should be allowed to carry merchandise and passengers to and from this country only when brought from or destined to enemy or neutral countries.

With the view of preventing the primary industries of the United Kingdom coming under the influence or control of enemy subjects, it is recommended that during the period of reconstruction after the war persons of enemy nationality should not, except under licence, own or control or be engaged in factories or works which are concerned in producing articles essential either to national defence or to the economic independence of Allied countries.

With regard to permanent measures the committee make drastic recommendations to prevent aliens, except by licence, securing any interest in British sources of supply of raw materials, to encourage the exploitation of natural resources within the Empire, to stimulate the production and commerce of the United Kingdom by Customs duties with preferential arrangements between the units of the British Empire, by the establishment of trade banks, by the encouragement of research, by the stimulation of shipping, by the more effective use of our inland canals, by regulation of railway rates and conditions, by an improvement of the British consular service, by the development of cheap postal service between different parts of the Empire, by unification of laws affecting companies, bankruptcy, merchandise marks, patents and trade marks, copyright.

Other matters with which the committee's report deals are citizenship and naturalisation and the desirable reforms in our practice relating thereto; loans to foreign countries, with a recommendation that these should be contingent on the purchase of material and manufactures in the United Kingdom; the taxation of alien commercial travellers and their samples.

The whole report gives evidence of the thorough comprehension by the manufacturers and traders of this country of the drastic steps that must be taken to combat in the future the peaceful penetration by our enemies, which only their haste to grasp its political fruits has prevented from accomplishing our economic slavery and destruction.

NOTES AND COMMENTS.

By the appointment of Mr. MacGregor Chalmers—whose work we have repeatedly had the pleasure of illustrating in "The Architect"—to succeed the late Sir Thomas Drew as architect of Belfast Cathedral, the Cathedral Board have, in our opinion, made a very wise choice, and we trust that when happier times arrive the cathedral may reach an early completion in the hands of Mr. Chalmers.

The entrusting by Sir C. Thomas Dyke Acland, Bart., to the guardianship of the National Trust of some 7,000 or 8,000 acres of the beautiful Exmoor country affords a precedent which may well encourage other owners of historic monuments or notable beauty-spots to follow the example thus set of preservation for the nation without complete abandonment of ownership. In the words of Lord Plymouth, chairman of the Executive Committee of the National Trust, "the plan adopted for securing the guardianship of the Trust is a new one in its history, one which, as we believe, has great future possibilities for the preservation both of buildings of 'historic interest,' and, as in this case of lands of "natural beauty,' the two defined objects of the Trust. The Trust will not become the owner of the lands. Sir Thomas Acland will grant to it a lease of them for five hundred years. Sir Thomas and his successors will continue to enjoy the rents and profits and all ordinary rights and powers of an owner, except that the owner will have no power to develop the estate as a building estate, and that the Trust obtains such control over the exercise of his other powers as may be necessary to preserve the property, as far as possible, in its present beauty and natural condition."

It is interesting to learn that amongst the unfortunate internees at Ruhleben the practice of art affords relief from the ennui of their imprisonment. In a letter received by the chairman of the Manchester Art Gallery Committee, Mr. Walter Butterworth, a Manchester man interned, writes: "Turning to the fine arts of painting and sculpture, I did not know we had any sculptors until this month, except one clever young artist who models heads in clay. But this month we have had a great deal of snow, and two men who have hitherto been resting came forward, and, like Michael Angelo on a famous occasion, began to model in snow. But our designers and painters are the most numerous and active (after the musicians). They have a shed, in which art exhibitions are held periodically. Many portraits are drawn and a few painted. One artist is just completing a portrait of me in pastels. There is an endless outpouring of theatre posters, caricatures, humorous drawings, skits on the camp, &c."

No doubt, after the war, architecture, like many other activities in the national life, will see vital changes, and we should not be surprised if the prognostication of Mr. William Lawton, speaking at King's College for Women, should be correct when he said that in future the kitchen and the living room in many houses would be one and the same place, and should be the most cosy room in the house.

It would have to be rearranged, and the kitchener, which would no longer be needed, since gas was the most economical fuel, must be got rid of. Its place could be taken by an overmantel cabinet, which, when open, would reveal a stove and a nice enamel sink, with hot and cold water, and, when closed, would be a handsome piece of furniture. A good deal of washing up must go, and fire-proof cookery utensils which could be put straight from the stove on the table could be used. The cheap British fire-proof Derbyshire salt-glazed ware would prove a real comfort.

The better utilisation of our present poverty-stricken and puny canal system, which the exigencies of transport during the war has brought to the front, is contrasted in the "Manchester Guardian" with Germany's decision to spend over £33,000,000 on making a waterway between the Main and the Danube, which will take vessels of 1,200 tons as compared with our monkey-boats of 25 or 30 tons. All Continental countries have learnt the value of well-developed systems of inland water transport, and in the coming industrial and commercial struggle we must rescue our canals from the throttling grip of the railway companies.

The additions recently made to the Municipal School of Art, Manchester, have been opened by Sir Thomas Shann, chairman of the Manchester Education Committee. The occasion was used to emphasise the importance of training in art and craftsmanship, and to further the efforts to bring the School into closer touch with the industries of the city and district. Mr. Spurley Hey, Director of Education in Manchester, in a short note attached to a plan of the School of Art, said the objects of the School were to give, by systematic and specialised courses of study, a thoroughly practical knowledge of the various forms of art. Organised courses of instruction were specially arranged to assist those who had taken up, or intended to take up, as a means of livelihood, some

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THIS charmingly designed tablet is being put up in Lakenheath Church, Suffolk, by the London Society of East Anglians. It is executed in white Carrara marble on a background of black Belgian marble, with the coat of arms in colour. The tablet was made and carved by Mr. Joseph Armitage, of 61 Eagle Place, London, W.C., from the design of Mr. E. Guy Dawber, Hon. Sec. R.I.B.A.

branch of applied art connected with the industrial activities of the neighbourhood.

The fifth volume of the Inventory of Ancient Monuments in Wales and Monmouthshire, published by the Royal Commission, dealing with the county of Carmarthen, has just made its appearance. With the issue of each successive volume the interest increases. Carmarthenshire is a county rich in archæological treasures. With such fertile ground to work upon it is not surprising to find the volume before us one of extreme value and interest. It consists of nearly 300 foolscap pages and contains over 200 splendid pictures, plans, maps, &c., illustrative of the ruined castles, churches, cromlechs, inscribed stones and other relics of hoary antiquity that have a special interest for the present and the future. Though partaking, as an official Government publication, of the nature of a Blue Book, it is none the less a volume that, like its predecessors, should find many purchasers among the general public at the price of ten shillings net, at which it may be obtained from His Majesty's Stationery Office.

The monuments dealt with are representative of many centuries. They go back to the Old Stone Age, for its prehistoric antiquities include Coygan Cave, which is of capital importance in the inquiry as to the first traces of man in Britain. The Commissioners, to whom Mr. Edward Owen is the secretary, state that the great gulf which exists between the civilisation of that day and that of the men of the New Stone Age is not lessened or explained by any of the finds that have yet been unearthed in the county. The knowledge even of Bronze Age men

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is confined to the external objects of his civilisation; of himself we have few clear or definite traces. There are in the county numerous Meini Hirion and earthworks. There is interesting reference to the Roman occupation and to the long period that elapsed before the coming of the Norman in the latter half of the eleventh century. The Commissioners express the view that during this post-Roman period there is likelihood that the Teutons and Scandinavian marauders visited parts of the county, but "the evidence from Carmarthenshire place-names is too slight to permit of our doing more than conjecture that, having established a footing in Pembrokeshire, neither Teuton nor Scandinavian was likely to neglect Carmarthenshire." There is illuminating reference to the military fortresses of mediæval times and also to the domestic and ecclesiastical architecture of that and later periods. The general arrangement of the book is in parishes, and to each is attached a classified list and descriptions of the monuments. There is an excellent index.

At the last monthly meeting of the Society of Antiquaries of Scotland, a paper read by Mr. R. Scott-Moncrieff, secretary, described and gave the history of three 16th century needlework hangings depicting the history of Rehoboam. These three pieces formed part of a set of four first mentioned in the "Inventaire of the Queene Regentis movables quhilkis were deliverit to me, Servay de Conde, vallet of chambre" to Mary Queen of Scots. The inventory, which was made upon Queen Mary's return to Scotland, is dated September 1561, and deals with the effects of the late Queen Regent, Mary of Guise. The entry referring to the hangings occurs under "Tapestrie," and is as follows:—"Item, ane tapestrie of the historie of Roboam, contening foure peces." At that time the hangings were in Edinburgh Castle, but when the inventory was checked off in 1569, on the occasion of the appointment of the Earl of Moray to the Regency, a marginal note indicates that they had been removed to "Striveling." They are, however, again back in Edinburgh Castle by 1578, when they are mentioned in the inventory of effects there which were taken over by the Commissioners of James VI. from the Commissioners of Regent Morton. From that period they are lost sight of until May 1692, when three of the set are found in the possession of "Marione Wright, relict of Jon Whytefoord, writer in Edinburgh," who sold them to the ancestor of the present owner in exchange for an old grate and 28s. Scots. The hangings, which were exhibited, depict the history of Rehoboam and his rival Jeroboam, the characters all being clad in 16th century costume. Judging from the story, it is the second hanging of the set which has been lost. The needlework is extremely fine, the treatment most artistic, and the whole work in a good state of preservation.

In a lecture on Reims Cathedral, Mons. Salmon, president of the British Federation of the Committees of the "Alliance Française," gave it as his view that the main reason for the German onslaught on the fane is the place which Reims occupies throughout the history of France. It is a city rich in memories, the moral capital of the country, the living symbol of the vitality of the French nation; and in the desire to destroy that symbol and to crush the soul of France lies the explanation of the martyrdom of Reims.

M. Terracher, in thanking M. Salmon for his lecture, added a second explanation of the enemy's crime. The Hun ambitiously lays claim to all the beauty to be found in art and literature. He has claimed Shakespeare, he has essayed to construct cathedrals on the plan of Reims, and he would now fain destroy the great and inimitable model, the glory of France, in jealous desire that Germany shall offer her poor copies of a great masterpiece for the appreciation of an awe-struck world. But the glory of Reims, like the soul of France, which it typifies, is immortal.

ILLUSTRATIONS.

ST. VINCENT STREET CHURCH.
HILLHEAD PARISH CHURCH.
FACULTY HALL.
NATIONAL BANK OF SCOTLAND.

THESE views of notable Glasgow buildings are reproduced in illustration of the article on Glasgow Architecture by Mr. John Keppie, F.R.I.B.A., on page 136.

ARCHITECTS AND NATIONAL SERVICE: DEPUTATION TO MR. NEVILLE CHAMBERLAIN.

UNDER the auspices of the R.I.B.A., and the Architects' War Committee a deputation representing the architectural profession in the United Kingdom waited upon Mr. Neville Chamberlain, Director-General of National Service, on Wednesday, February 21, to urge in connection with the National Service scheme the utilisation of architects by the State for the special kind of work for which their training has fitted them.

The following is a list of architects nominated to serve on the deputation, and most of them were present:—

Mr. Ernest Newton, A.R.A., President R.I.B.A., Chairman of Architects' War Committee; Sir Aston Webb, K.C.V.O., C.B., R.A. (F.), Past President R.I.B.A.; Sir John Burnet, R.S.A., LL.D., Vice-President R.I.B.A.; Sir Ernest George, A.R.A., Past President R.I.B.A.; Mr. Reginald Blomfield, R.A. (F.), Past President R.I.B.A.; Mr. Paul Waterhouse (F.), Vice-President R.I.B.A.; Mr. H. V. Lanchester (F.), Vice-President R.I.B.A.; Mr. E. Guy Dawber (F.), Hon. Secretary R.I.B.A.; Mr. John B. Gass (F.), President of the Manchester Society of Architects; Mr. W. Alexander Harvey, President of the Birmingham Architectural Association; Mr. A. B. Burleigh, President of the York and East Yorkshire Architectural Society; Mr. Adam F. Watson (F.), President of the Sheffield, South Yorkshire and District Society of Architects and Surveyors; Mr. Lennox Robertson (F.), President of the South Wales Institute of Architects; Mr. T. Forbes Maclennan (A.), President of the Edinburgh Architectural Association; Mr. Harbourne Maclennan, President of the Aberdeen Society of Architects; Sir Frank W. Wills (F.), President of the Bristol Society of Architects; Mr. W. Kaye Parry (F.), President of the Royal Institute of the Architects of Ireland; Mr. James Findlay, President of the Dundee Institute of Architects; Mr. Charles Cheverton, President of the Devon and Exeter Architectural Society; Mr. John Watson (F.), President of the Glasgow Institute of Architects; Mr. G. Frederick Bowman, President of the Leeds and West Yorkshire Architectural Society; Mr. J. Woodhouse Simpson, President of the Leicester and Leicestershire Society of Architects; Mr. E. Percy Hinde (F.), President of the Liverpool Architectural Society; Captain R. Burns-Dick (F.), President of the Northern Architectural Association; Mr. J. Alfred Gotch, F.S.A. (F.), Vice-President R.I.B.A., President of the Northamptonshire Association of Architects; Mr. H. Gill, President of the Nottingham and Derby Architectural Society; Sir William W. Portal, Bart. (Hon. A.), President of the Hampshire and Isle of Wight Association of Architects; Mr. A. G. R. Mackenzie (F.), President of the Architectural Association; Mr. H. Martineau Fletcher (F.), Vice-President of the Architectural Association; Mr. Edwin J. Sadgrove (F.), President of the Society of Architects; Mr. Percy B. Tubbs (F.), Past President of the Society of Architects; Mr. A. Alban H. Scott, Vice-President of the Society of Architects; Mr. Basil Champneys, Mr. W. H. Cowlishaw, Mr. F. J. Wills, Mr. Alan E. Munby (F.), Hon. Secretary of the Executive Architects' War Committee.

Mr. ERNEST NEWTON, A.R.A., President of the Institute, said:—

The deputation which I, as President of the Royal Institute of British Architects, have the honour of intro-

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ducing is representative of the whole profession of architecture throughout Great Britain.

Our object in coming here is twofold: First, to indicate briefly the services we believe we can render to the State; and, secondly, to offer these services and the whole machinery of our organisation in order to render them readily and easily available.

Other speakers will go more into detail in regard to the specific services which architects can render, but I should like as a preface to make clear—what is not, I think, generally understood—that the profession of architecture is essentially practical, and, although individually we may specialise more or less, collectively our work includes everything directly and even remotely connected with building.

We are accustomed to surveying, estimating, assessing damage, and to the supervision of works of all kinds. We are familiar also with the construction of large and complicated factories of every description as well as of public buildings and houses. As men of affairs and judgment we have to see that all these buildings are put up with a proper regard to economy in cost and arrangement.

At a time such as the present when our knowledge and experience should have been of the greatest value to the State, and would have saved delay, mistakes, and much waste of money, we have, as an organisation, been made no use of.

It is now late in the day, but believing that in organising the man power of the country it is more practical and economical to put men to work, so far as possible, which their training and experience enables them to do, we have asked you to receive this deputation which offers you this skill and experience to make the best use of that may be possible in your scheme of organisation. I am also asked to say that we shall be glad to submit a practical scheme for your consideration or to assist in any way you may indicate.

Mr. REGINALD BLOMFIELD, M.A., R.A., F.R.I.B.A., said:—

Sir,—As Mr. Newton has said, we are here to place ourselves entirely at your disposal in the way you think best. We think we can help you to some extent in calling your attention to some qualifications possessed by architects, which have been greatly overlooked in the past. Over two years ago, soon after the war broke out, the Royal Institute of British Architects offered its services to the Government of that time, and the Government of that time failed to realise what the capacities of architects were: they turned the cold shoulder on them. And, in consequence, the country lost the services of a very capable, trained body of men. The qualifications to which I venture to call your attention—and I shall only put the matter quite generally—appear to me to be these:

In the first place architects are trained designers and constructors in all forms of building; they have to keep in touch with every sort of material, and to know the new materials which come along, and they are, of course, familiar with the ones of which they have already had experience. They have to deal with every sort of building, from a pig-stye to a palace. And they have to deal, in the conduct of their work, with all sorts of unforeseen emergencies, which may occur in the course of building operations, and which, of course, must be dealt with then and there. Architects cannot wait about and let things drift, or leave it to the builder. The architect is the man who is responsible, who has to take upon himself the responsibility of settling these things as they occur, and we venture to suggest that architects have more varied experience in building matters than have engineers, who are, often, specialised men. We have often to deal with rough-and-ready situations.

Mr. NEVILLE CHAMBERLAIN: I do not know that I quite understand the particular point to which this criticism is directed. It is only for my own information. I am not criticising your remarks. I understand you to say that the services of the Architects' Association were offered to the Government, and that they were not availed of as they might have been. Do you mean by that that the buildings which were erected were not erected with the aid of architects?

Mr. BLOMFIELD: No; I am talking about the general services which might have been rendered by architects in all sorts of situations. My remarks were calling your attention to the fact that we think the training which architects receive enables them to deal with all sorts of varied situations. One of the most essential qualities of architects is resourcefulness in dealing with matters rapidly. Then there is the question of draughtsmanship. Architects are not only trained designers and draughtsmen on their own, but they are all able to make drawings for others, and to see that drawings are properly carried out. Those who cannot do this would be useless in supervising work which has to be carried out to drawings. To know one's way about in drawings requires special knowledge and training, and that the architect possesses in a very high degree.

And the third point I suggest to you, Sir, is: There is a prevailing idea that architects are merely artists. That is quite wrong; they are that, and a good deal more. Half of our time and training and work is devoted to the organisation, the administration and control of manual and mechanical labour. During the last eighteen months or two years I have been engaged in superintending and taking part in a good deal of trench work round about London, and I found that in these trench systems, in addition to the position officer, there were civil engineers in charge of the works, who were drawing salaries, and later on their salaries were commuted and they were given commissions. I do not say that they were not competent to do their work, but I think the architects were as competent, and in some ways more competent, because they are more used to rough-and-tumble work such as we sometimes have to deal with. This is an instance of the sort of service architects might have been called on to render.

I shall not detain you further, Sir, with the remarks I have to make, except to say that we architects are, at this moment, precluded from the practice of our calling, but, as patriotic men, we cheerfully acquiesce in that, because we believe it to be for the best interests of the country. We are, therefore, in the position of having a good deal of enforced leisure, which enables us to place our services at your disposal in whatever way you may think best adapted to the interests of the country.

Mr. J. B. GASS, F.R.I.B.A.: Sir,—As President of the Manchester Society of Architects, I have the honour to specially represent on this deputation the nineteen architectural societies of Great Britain and Ireland allied with the Royal Institute of British Architects, and embracing the whole of the country. There are also twenty allied societies in the Colonies. I am here supported not only by the President and past presidents of the R.I.B.A., but by the presidents of the allied societies from all parts of England, from Wales, and from Scotland, together with the presidents of the Society of Architects and the Architectural Association with this deputation—the most representative and important deputation ever known in British architecture.

In the Manchester Society's area and generally in the provinces, members practise as architects and surveyors developing the practical as well as the artistic side of the profession. Many are specialists in factory and workshop design and construction.

The training and experience of architects enable them to arrange and design buildings in the best way for their effective use, construct them scientifically, and give them suitable architectural character. As you know, Sir, the universities and municipalities in the great industrial centres, including Birmingham, have all comprehensive courses in architecture. The examinations for membership of the Royal Institute of British Architects lay great stress on planning, scientific construction, materials, sanitation, and general practical equipment for work as well as on artistic ability, and modern practice makes the same demands on all architects.

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I mention these things, Sir, to emphasise the fact that this specialised training, with practical experience of affairs has brought forward a race of highly trained and practical as well as artistically minded men who practise in the various parts of our country. Their services for the commonwealth would have been of great practical and economic value if properly utilised. They were never so utilised, though their services were urgently required from the beginning of the war and are required now.

Architects form an organised profession. Through the President of the Institute all their specialised services were placed at the disposal of the State in September 1914, when it was seen that those services were urgently required in the national intrest. As an organisation they were never called upon to help in building in any way, or to advise or suggest. This was in part owing to the bad arrangements made for dealing with necessary national work. The allied societies were ignored altogether, though they could have been of great service in the various districts. As a whole organisation, Sir, it has been stated that we were unknown to the authorities—the only official requests for services were as unskilled labourers, as bargees, or in connection with charitable work.

The architectural profession as the directors of the scientific and technical side of building construction and requirements is the recognised professional director of the building trade. Owing to their not being called upon the whole of the general organisation of the building trade of the country was not utilised for the many national building works requisite in all parts with consequent unsatisfactory arrangement, delay in completion, inefficiency, and waste. The organisations of practically all other of the necessary trades, iron, leather, chemicals, and others were utilised to great advantage in the public service.

The Allied Societies put forward the following suggestion for your consideration:—

That an Architectural Advisory Committee, with representatives in the Allied Societies' districts, might be appointed.

The Architects' War Committee with the Allied Societies will undertake to further extend their register, classify and recommend for employment experienced architects for control of national building operations and buildings; these to be appointed to positions as required through the Advisory Committee and as far as possible in their home districts.

When advantage would accrue to the State special arrangements might be made with practising architects to undertake part-time duties in the districts in which they practise.

The special training and experience of architects enable them to undertake all duties in connection with all classes of buildings and the various works connected therewith, as well as inspection work dependent on the carrying out of drawings and specifications.

When demobilisation occurs this organisation will be available to assist architects on active service in returning to professional work in civil life.

Sir, we, the elder men of our important profession, appreciate the value the national organisation you have undertaken may be to the State. In the public interests we feel very strongly that in your organisation for National Service there should be a definite place and a recognition of the value to the nation of the training and specialised experience of the members of the architectural profession and they should not be dealt with in the exceedingly unsatisfactory way heretofore adopted.

Sir ASTON WEBB, K.C.V.O., C.B., R.A.: I ask you, Sir, to feel that we are here recognising the enormous responsibility and difficulty of your office, that our desire is to assist, if we can, in one branch of occupation in this country, by explaining to you how we would wish to place our services at your disposal. We would like to say—as I think has already been said, and I might say it once again—that we hope that when you come to allot the work, that it may be possible to allot to architects work which their previous training will have qualified them to undertake. At the same time, I think I am speaking for the whole of our profession in saying that we unreservedly place our services entirely in your hands, in the way you think they can best be employed for the needs of the country. But we think men who have been trained as we have been would be more suitably and more usefully occupied in similar work that they have been accustomed to than in being put to some outdoor occupation which probably we should be very incapable of satisfactorily carrying out. I have heard of gentlemen high up in my profession offering their services at the War Office, for instance, and being referred to the Labour Bureau, as being the proper place for them to apply. That may be right, or it may be wrong, but I must say that it has hurt them, and it does not encourage voluntary help and further work to be referred to a department—which may be the right one—that which does not strike us as being quite the one which we should have expected to be sent to.

I might also say—although I am aware you know a great deal about architects and architecture, and it may seem almost impertinent in me to explain to you—that we are accustomed to undertake work of all sorts from town-planning down to cottage building, and with all the intermediate work with which some or other of us are very intimately acquainted. A friend of mine who is engaged in Government munition work called on me the other day and said—not at all with reference to this deputation, he knew nothing of it—"I cannot understand why it is the Government do not employ architects more than they do in my work." I said, "What do you mean?" He said, "In the work which comes before me there are all sorts of things which have to be examined and passed, such as large cases for munitions, shell cases which are made of teak, and have to be made of the exact size to fit the shells, gun carriages, wheels, and the hundred and one things required, and that have to be put together in a certain way. We constantly find they are not the right size, and are not put together in the right way, so that when they are put down on a platform, for instance, they fall to pieces." These are not exactly architectural things, he said, but they are things which an architect is just the man to examine and pass. We want men who can understand a drawing when it is put before them, and can take a drawing and a specification in their hands and see what is being delivered, and see whether they are in accordance with the drawings and specification or not, and if not, where they are wrong. It is a very simple thing, but the man, whoever he may be, who has to pass these things, ought to have the training which architects have, and which enables them to carry out that duty. I only mention this as one of many ways in which we could help apart from actual building work.

One other point I would mention is, that although, as Mr. Blomfield said, our work has been compulsorily stopped—very properly, no doubt—we think that while our proper work has been stopped our ability to fall in with national work has been overlooked. It was stated in Parliament that engineers were wanted rather than architects. That was a point which we all felt very much at the time, because we know that we are perfectly able, and more fitted for a great deal of this work which is carried on in this country by the engineers. I have no quarrel with engineers—both my sons were Royal Engineers—and I am not likely therefore to say anything against the Royal Engineers. But I say there is much work in this country going on which we should be better qualified to undertake than is a Royal Engineer. A great many mistakes have been made we all know: it is common knowledge, though I should be the last to say that if architects had been employed there would have been no mistakes. Then many of these mistakes would have been less likely to occur had those with our special training been employed. We do not profess to be cleverer than anybody else: all we profess is to have

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had a special training, which has given us facility in one particular branch, and we hope very much that we may have the opportunity of exercising it.

Our responsibility has been mentioned. People say to us, "Here is a certain amount of money, please carry this out for us for the sum which you say it should cost." There again, the military engineer has not been accustomed to the same sense of responsibility: he has someone over him, and someone over him again, and again he has someone over him. We are accustomed to carry out work on our own initiative, which, I venture to think, is a most useful and desirable qualification, especially for work which is being done in a hurry, as this necessarily must be.

These are a few of the reasons for which we have ventured to trouble you and take up your time, by expressing the hope that we may find occupation on the lines in which we have been educated and brought up. And it is our desire to place the whole of our ability, skill, and service at your disposal, and also the organisation of our societies, if you will be good enough to make use of them.

Mr. NEVILLE CHAMBERLAIN, in reply, said: Mr. President and gentlemen,—I have listened with very much interest and a great deal of sympathy to the representations which have been made to me upon your behalf. It has long been in my mind that certain professions, including architects, were not being made as much use of as they might be; and I am anxious to do what I can, in this new Department which has been set up for dealing with not manual labour only, but with man-power, whether manual or non-manual, of the country as a whole. I am anxious, so far as I can, in this new Department to set up some organisation which will enable us to utilise, for the advantage of the country, special training and special aptitudes, such as those possessed by architects. My own business life has brought me into contact with architects to a considerable extent, and, of course, I very well understand what their capabilities are.

Now, with regard to the past, I do not think it is necessary for me to put up any defence of Government Departments, with which, in the past, I have had nothing to do. I will only say I am sure you all have realised that when you enter upon such an entirely novel set of conditions as those which obtain in a great war like this, it is very difficult for a Department to change its whole attitude of mind, and to adapt itself with the rapidity which we should like to such new problems as arise; and that if things have been slow, as they have been in many ways, I am quite certain that it is a state of affairs which is common to every single Government which is engaged in the war, whichever side they are fighting on. But now, perhaps, the time has come, although it may be late in the day, when it is possible to make some improvement, and when that improvement, although late, may not be too late still to be of service. Of course, the difficulty is to find the holes into which to put the various pegs. I have got heaps of people who want jobs, but I have not got enough jobs for the people. And I think that really the most practical way of meeting the desires which you have expressed this morning would be for you to set up some sort of Advisory Committee, as was suggested by Mr. Gass, which could keep in touch with me, and which could suggest, from time to time, to me ways in which the services of architects might be utilised. I was rather struck with the suggestion which was made by Sir Aston Webb, that architects may be used as inspectors. If they were willing to give their services in such positions as that, I am bound to say that seems to me a very practical and excellent suggestion. I am not at all sure that we are not over-inspected nowadays; there are certainly vast armies of inspectors engaged in testing and passing materials required for one purpose or another, and I am not quite certain that they are all as necessary as they might have been in peace time. But I am sure that a good many of them have got special training which would enable them to do something else of particular value to the country. That is a suggestion I shall certainly bear in mind, and it is one of which I hope to make some use.

Now, I want to tell you that I am endeavouring to make special provision for men of the professional classes. The scheme which I have put forward for National Volunteers has been criticised in some quarters, on the ground that it was evidently not designed for men of the professional classes. Well, I would defy anybody to draw up a form of offer of service which would be equally applicable to every class in the country, and, of course, there are a far larger number of people required for manual labour than for administrative, clerical, or professional work; but the subject has not been lost sight of, and I have got an arrangement made under which offers of service, filled up by men who, on the face of their card, belong to those classes, would be sorted out from the others, and dealt with in a different manner. Instead of going back, as the card does, to the Local Employment Exchange, it will go to the Divisional Office, that is to say, the headquarters, a higher office. There there will be a special officer appointed, qualified to deal with this particular class of men for the purpose of conducting the personal examination which is necessary in order to be quite certain that we have got the volunteers properly classified before we attempt to use them. A man, very often, does not know, or at any rate does not give a correct account of, his qualifications from our point of view. There must be some personal contact, and that is of advantage to the man, because it enables him to say by word of mouth a great deal more than he would write on paper. We shall have a special officer, in a special place, to deal with these professional classes; and having got them classified and sorted, we shall take special measures to offer their services, to make this known to Government Departments and to private firms who may have vacancies for administrators, or clerks, or other professional men of one kind or another, that we have a body of such people whose services we are able to put at their disposal. I hope in that way—although one is never free from the possibility of mistakes—we shall be able to utilise the services of these people in the particular avocations for which they are best fitted.

I would suggest to you that if your members who feel that they are able to do so—and I hope they will all feel that they are able to do so—will fill up our offer of service cards, they will be treated in that way. They need not be afraid they will be sent to dig potatoes, or things of that sort: we are not out to waste labour in that way, whether it be manual or non-manual: we want to make the best use of everything, and we are going to try our best to classify our volunteers properly. You will help me very much if you will form this Council, and put before me, from time to time, such information as comes to you about work which you think you might be utilised for, and for which the services of architects are not now being utilised.

I think, perhaps, the best plan will be for me to just turn over these things, and I might correspond with some representative, the President, upon the subject. I did not know, exactly, what it was we were going to discuss this morning, so I am not prepared to make a definite suggestion, but I will correspond with him, with the view to carrying out something on those lines, and I hope that in that way I shall be able to meet the wishes which you have expressed, and which, I recognise, have been prompted entirely by patriotic motives.

Mr. NEWTON: On behalf of the deputation, I thank you very warmly for your cordial reception, and for the very hopeful way in which you have foreshadowed your way of dealing with our difficulties. I need not say that, personally, I shall be only too glad to devote as much time as is left to me to offer any suggestions to you, and at the same time it would be of very great value if suggestions of possible employment might come from you to me.

Mr. NEVILLE CHAMBERLAIN: We will make it reciprocal.

The Deputation then withdrew.

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GLASGOW ARCHITECTURE.*

By John Keppie, F.R.I.B.A.

While the City of Glasgow cannot be said to be ideal in the matter of planning, there are indications in the old parts of an appreciation of what is too often considered a modern idea. One is constantly surprised at the laying out of some of the Squares in the older part of the city, and there is occasionally a spaciousness which must stand for all time as an example to those who come after. The buildings surrounding the Green are dignified and quite appropriate. Most of the Old Town churches are fairly surrounded with free space; while St. Andrew's, St. George's, and St. Enoch's Churches are placed in positions which are quite worthy of their architecture. The Royal Exchange, forming as it does the end of the vista at Ingram Street, is well placed, and the surrounding buildings are in keeping with the structure, although one cannot help regretting that the site is not as open to the west as to the east.

Of the natural features of Glasgow there are many which are quite satisfactory. The principal one is, of course, the River Clyde, which has now become of such noble proportions as to be a standing credit to the city which made it. What a pity that a community which had the energy and imagination for such a creation had not the artistry necessary to properly preserve it. The lower reaches are quite satisfactory, and it seems appropriate that the banks of the great river should be fringed with the great shipbuilding yards, and also the various commercial manufacturing yards which owe their existence to it, while it owes its existence to them. That the Caledonian Railway should have been allowed to spoil the beautiful view west with its two bridges, and also that the same Company's bridge should have been allowed to disfigure Argyll Street, seems almost incredible. Truly, we are a strange people!

But even with the botch which has been made to the west of Jamaica Bridge, the finest site in Glasgow is still unoccupied. I refer to the south bank of the river, running east from Jamaica Bridge. What a site this would have been for the municipal buildings of Glasgow! Had they been placed there the muddle of the railway bridges would probably never have occurred. It is inconceivable that the Customs House should remain permanently in its present site. Both naturally and from a commercial point of view this site on the south bank of the river seems singled out for the placing of such a Customs House as would be worthy of the city. The slope of the High Street is another natural feature which adds interest to the city. When the University occupied the east side of the street, with the Cathedral, the Tolbooth, and the Glasgow Cross in the immediate vicinity, and the old houses still standing, before a sanitary generation very properly saw fit to demolish them, the district must have been one of surpassing interest. Railways, however, seem to be our *bêtes noires*, and here again a district is ruined artistically to provide a goods station of hideous appearance.

Garnethill is another interesting natural feature, and lends variety to the otherwise level formation. The neighbourhood of Park Terrace, Woodside Terrace, and Royal Terrace, &c., is laid off in a dignified civic spirit, and while some of the features, such as the granite stairs, do not get their full value owing to the nature of the approaches, one cannot cavil at the way in which this district has been dealt with. Gilmorehill, crowned with the University and the rising ground at Hillhead, helps also to enhance the city. When the dark of evening descends, and the masses are emphasised and the details wandered, one can hardly conceive a finer view than this as seen from Woodlands Road. Had the University been of Greek architecture the similarity of the hill to the Acropolis at Athens would have been most marked.

The architecture of St. Vincent Street, West George Street, West Regent Street, and Bath Street, though not greatly personal, is dignified, and from its rythmic quality impresses by the charm of its comparative repetition. Of recent years many new structures have superseded the old tenement buildings. Some of these are quite worthy of the city. There is a slight tendency to too much individuality in them, but, on the whole, they are marked by a restraint and an artistic appreciation altogether admirable. One of the features which one cannot help remarking is the change which the use of red sandstone has made in the city. Personally, I can never but regret that the difficulty and expense of procuring white freestone have brought about this change, as the greyness and quality of the freestone when weathered by Glasgow soot is quite another thing from the sordid dinginess which the old red sandstone always assumes in our atmosphere. In order to get full value from red stone it is necessary to have a clear atmosphere, and the presence of much green in the immediate vicinity. Even the decay which takes place in white sandstone is not without its compensations. Who has not noted the charm of decay and the feeling of antiquity which it gives, say, in a city like Oxford! A reasonable weathering is much better than the effect of the preservative solution with its clammy greasiness which we sometimes see in the desperate fight against natural decay and the pernicious effect of sulphur in the Glasgow atmosphere. When this is not too marked one does not object to its use in ancient buildings. A certain amount of it does not detract from the artistic effect but helps, to a marked extent, to soften and simplify a too mechanical perfectionist detail. I do not say that such an effort at preservation is not often justified, but, in a large number of cases the decay is not only not objectionable, but is sometimes advantageous.

In considering the comparative position of Glasgow in relation to other towns in this country one must never lose sight of the fact that it is a commercial city, and in spite of its size and importance it has never been the capital of Scotland. The Government buildings are few, and none of them rises to the dignity of great buildings. While they probably suit the business requirements they fail to impress the public or the visitor with the greatness of the country which they so unworthily represent. Such buildings as the Post Office and the Income Tax Offices are frittered away so as to make no impression. The Customs House, while dainty in its way, is so small and unobtrusive that to anyone not intimately acquainted with the mysteries of the port it must be difficult to find. The Law Courts at the Green and the County Buildings in Ingram Street are more dignified, but the latter are so sandwiched in that they are entirely without effect.

Pre-Reformation buildings may be said to have entirely disappeared from the city, only one fifteenth-century house being known, with the exception of the venerable Cathedral, which is the grand and stately memorial, as it is the only one of the early history of the city. It was Bishop John Achaius who began to build, or rebuild, the Cathedral Church, and in 1136 it was consecrated in the presence of King David, its real founder. This Cathedral was erected on the eastern part of the site of the present Cathedral, and it is doubtful whether there now remains any trace of it, as it was destroyed by fire forty years after its consecration. The fire took place during the episcopate of Bishop Jocelin, the founder of the Burgh of Glasgow.

The Crypt, or more properly the Lower Church, was ready for occupation and consecration in 1199, and the building of the rest of the Cathedral proceeded, under the charge of Bishops and Archbishops, as funds permitted.

At the time of the Reformation the Cathedral passed into the charge of the Town Council, and was cared for by them, until in 1857 it was taken over by the Crown, under whose care it remains at the present day.

Among the oldest of our institutions is the University. An important era in the history of the city is marked by its foundation. Bishop William Turnbull instigated James II. in 1450 to get from Pope Nicholas V. a Bull sanctioning the erection in Glasgow of a University,

* A lecture delivered before the Glasgow Technical College Architectural Craftsmen's Society.

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"being a place well suited and adapted to that purpose on account of the healthiness of the climate, the plenty of victuals, and of everything necessary for the use of man."

Teaching under the auspices of the Bishop began in the Crypt of the Cathedral, but prospered to such an extent that separate premises in the "Auld Pedagogy," in Rotten-row, had to be allotted for College purposes. A few years later the "New Pedagogy" was built on the east side of the High Street, and, with additions, served as a seat of learning until 1870, when the University was transferred to Gilmorehill. The old College in High Street was an exceedingly interesting example of Scottish building of a type which can still be seen at Stirling and Edinburgh. The College gate was re-erected at the entrance to the grounds at Gilmorehill, and the staircase in the outer court used as the approach to the west quadrangle from the Professors' houses.

The University at Gilmorehill was erected from the design of Sir George Gilbert Scott. Additions have been made at various times by others, although, generally speaking, the part designed by Scott still dominates and fixes the characteristic architecture of the buildings. Scott was one of the best known of the Gothic revivalists, and supervised the restoration of a great number of the English Cathedrals and Abbeys, when sometimes in my opinion they would have been better left alone. One cannot help feeling that in the University there is the example of a man working in a style with which he has comparatively little sympathy; the endeavour to impart a Scottish flavour to the structure being everywhere manifest. It is an Englishman determined to do Scottish Gothic. The dominating tower and spire are taken almost literally from the western spires of Burgos Cathedral, but, isolated as it is on a long southern façade, it conveys little of the charm which one experiences at Burgos, where the two spires, close together on the western front, unite with the complicated central tower to make a most charming ensemble.

There is another example of Scott's work in Glasgow, St. Mary's Episcopal Church in Great Western Road, a typical example of his style. The spire was added a few years ago by his son, John Oldrid Scott.

(To be continued.)

NEW ARCHITECT FOR BELFAST CATHEDRAL.

In the columns of "The Irish Churchman" the Bishop of Down writes as follows:—

The Cathedral Board of St. Anne's, Belfast, have arrived at a decision on the very important question of an architect for the cathedral in succession to the late Sir Thomas Drew. After long consideration and much careful inquiry they have appointed Mr. MacGregor Chalmers, of Glasgow. Mr. Chalmers is an architect of wide experience, and an enthusiastic student of the historical side of his art. He has devoted himself mainly to church architecture. To him was committed the important and difficult task of restoring Iona Cathedral. Also, for some time he has been carrying through the beautiful restoration of Paisley Abbey, a work which is being done by members of the Clark family, so well known in Scotland and in Ulster. In order to fit himself for these and other similar undertakings in Scotland, Mr. Chalmers made a special study of ancient Celtic and Anglo-Celtic ecclesiastical art in our own island. This was necessary because, as is well known to every student, Scotland owed the beginnings of her Christianity to Irish missionaries from Ulster, especially to St. Columba. To understand, therefore, the origin and development of church architecture in Scotland, the student must turn to Ireland. This is what Mr. Chalmers did, and his studies of the ancient ecclesiastical buildings of our land have fitted him pre-eminently to undertake the completion of the greatest church ever founded on Irish soil. There is a further and deeper significance in these things. Sir Thomas Drew, in his designs for Belfast Cathedral, departed boldly from the Gothic tradition. He adopted a round-arched type in keeping with a more primitive Christian custom. In this way he secured far greater seating capacity, and also far grander proportions than could have been obtained for an equal outlay of money and of work, if he had followed more conventional lines. Historically, the result is extremely interesting. The ancient churches of Ireland were built in this very same round-arched style, only they were very small, and were more remarkable for the development of a peculiarly original and attractive type of ornament than for any grace or grandeur of construction. Now for the first time in the history of our land has come the opportunity of building on a vast scale a great cathedral church in that very style in which the remote forefathers of Irish Christianity made their primitive, though fascinating, experiments. In competent hands, Belfast Cathedral should become a new and great thing in architecture; not only a fitting centre for the religious life of our community, but also the most characteristic and interesting of all the new churches of our land, and the only thing of its kind in the world. In the matter of ornament, when the time for that comes, our architect will find infinite suggestions for delightful details in the remains of early Irish art, so that in its smaller elements as in its great outlines our cathedral will have the marks of real distinction.

It was with a sense of peculiar responsibility that the Cathedral Board entered upon the task of finding a successor to the distinguished architects who inspired and guided the work from the beginning. The designs were Sir Thomas Drew's. But from the outset that brilliant architect acted in concert with his equally brilliant friend and teacher, the late Mr. W. H. Lynn. They were inseparable companions in thought and work, and it is not too much to say that while Sir Thomas Drew was officially the architect of the cathedral, Mr. Lynn was associated with him so closely that the personal share of each can never be fully stated. During the short period between the death of Sir Thomas Drew and that of Mr. Lynn, the cathedral was entirely in the hands of the latter; and, though no building was possible during that time, it is not too much to say that the future of the work was never absent from his mind. The sketches which he made at this time, and the most generous bequest of £5,000 which he left to the building fund are a sufficient proof of this. Let it be remembered also that Mr. Lynn was the donor of the magnificent west window, one of the grandest of Powell's many grand works. Kept private during Mr. Lynn's lifetime, by his special request, this fact should now be known and placed on record.

Feeling the difficulty of the task which they had to perform, the Board appointed a special committee. For more than a year this committee laboured most carefully, obtaining information from authoritative sources in England and Scotland, as well as in Ireland, and examining many drawings, and were finally led to the conclusion—a conclusion in which they and the Board agreed unanimously—that of all available architects Mr. MacGregor Chalmers, both on account of the work which he had already done and of his special study and experience was most fitted for the task of being our guide in any future work which we may undertake. Mr. Chalmers has now accepted the Board's offer, and is officially architect to the cathedral.

While the war lasts, and most likely for some time after the declaration of peace, no advance can be made in the building of our cathedral. Meanwhile the building fund is growing quietly and steadily, and now our architect is appointed, and in his mind the plans for our next step will be maturing. We trust that in the new life which will surely come after the war, and in the development which we expect and hope for our city of Belfast, the cathedral will grow into a splendid temple for the glory of God, and a building worthy of being the centre of the religious life of so great a community.

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FIRE INSURANCE IN RELATION TO BUILDINGS AND THEIR ARCHITECTURE.*

By SIR ASTON WEBB, R.A.

(*Concluded from last week.*)

ONE difficulty already referred to is cost; a fire-resisting building is at present more costly to build, though with the more general use of fire-resisting materials the difference would no doubt rapidly decline, indeed, owing to the war, has already begun to decline. Take one instance: the use of concrete, asbestos and other non-inflammable slabs has been largely employed in huts for walls and partitions all over the country, and with the present scarcity of timber is found cheaper and better.

In some cases the common sense and public spirit of the building owner secures a better form of construction, oftener the fear of fire does still more, but the sense of security given to the building owner through his insurance policy neutralises many of his good intentions and some further inducement seems to be required.

The architect does something by bringing before his clients the many new fire-resisting materials constantly coming on the market, and he urges his client before spending a penny on adornment to make his building as fire-resisting as possible; his client agrees cordially with all his architect says, but finally does nothing to carry out his advice, and again it is felt that some further inducement is required.

Before leaving the architect may I say in passing we have long given up the attempt to make buildings fully fire-resisting, and are content to aim at the more possible and practicable object of making them so to a greater extent than at present.

The British Fire Prevention Committee does something in popularising fire-resisting construction and materials. Its objects mainly are the conducting of investigations at its testing station, Regent's Park, of the fire-resisting qualities of building materials and the compiling of records and publishing the results of their tests. These reports are looked upon, I believe, as forming the leading authority on fire prevention problems in the Empire. Those who support the Committee by subscribing include the Government and a number of public officials, various municipalities, and some of the big industrial corporations. Traders, for obvious reasons, are debarred from membership. The claims of most fire-resisting materials have by now been through this ordeal by fire at the Regent's Park Testing Station; the results are carefully noted and published without comment and expressions of opinion are avoided. It is to be hoped that this work will in the not distant future be carried on with the close co-operation of the State.

This Committee thus provides reliable material for all interested in fire prevention and protection, the insured and the insurers, but beyond this it can do little to induce people to use such materials.

It seems therefore that though self-interest, professional advice, demonstration, and research have done something, everything possible for the prevention of fires in buildings has not yet been done, and there are still miles and miles of buildings so constructed that they only await a match to set them ablaze, though present regulations appear to be fortunately sufficient to prevent a general conflagration on a really large scale.

Nevertheless there were in London alone from 1890 to 1900 ten conflagrations, not counting fires which involved two or three houses only, one of the most serious the Cripplegate fire in November 1897. The streets were narrow, the fire easily passed across them, the damage was estimated at £1,250,000, and it is to be regretted that this was one of the areas which was rebuilt on the old lines with the same narrow streets, though I believe concrete has been used in many instances in floors and roofs in the rebuilding.

There appears only one further inducement that can be held out to the public to induce them to provide all possible practical protection to their buildings.

The Companies have a "Fire Offices Committee" and I understand in "Fire Protection in Buildings" that "special inducements in the way of reduced premiums are offered by the fire offices, whether tariff or non-tariff, to the owners of buildings which are erected on fire-resisting principles and also for buildings protected further by extinctive appliances, fire alarms, &c.," and further that "the amounts of the rebates are not made public but are issued confidentially to the various offices by the Committee."

If this is correct it seems to offer the very inducement we require, but the advantages offered need to be more generally known and understood *before* the building is erected and not *after* when it is too late. Perhaps this Committee could take us architects a little more into their confidence, so that we could know to some extent what their requirements are to secure these rebates, while our plans are in course of preparation.

I will not venture further to elaborate this point, for I feel I shall get out of my depth; you are trained experts in such matters, I am but a mere amateur who only comes here at the express invitation of your President. At the same time I can claim to know something about building, and I will ask you to believe that many of my colleagues as well as myself feel that we are getting behindhand in this matter of fire-resisting building, and on looking round we think you gentlemen are more able than any others to assist us, and that without any very drastic measures on your part, to obtain further good and sound building without loss either to insurer or insured.

The rules of the Fire Offices Committee have a standard of fire-resisting construction applicable to *all* buildings except for a further standard for various types of mills. These rules follow generally the London Building Act requirements, and, if I may say so, appear perfectly reasonable, but what advantages are given to buildings that come up to Standard I. I am not clear.

May I tell you two small experiences of my own more or less to the point? Some years ago as a young man I was erecting a warehouse which was to contain somewhat inflammable materials, and I recommended that the floors and roofs of the building should be constructed of fire-resisting materials at the additional cost of so much. This was assented to on condition that the insurance premium was reduced. I made inquiries and was courteously and frankly told that no concession could be made, and that my clients would no doubt use the concrete for their own protection and safety. I firmly believe that my clients thought that this meant that the companies had no faith in these expedients as a matter of protection, and the building was erected with the ordinary wood joist floors. A few years afterwards it was burnt down. I had the pleasure of putting it up again, and the companies the pleasure of paying for it, though there was no real pleasure to anyone concerned; matters may be quite different now, though all I can say is I am not aware of it. I should like to take the opportunity, however, of gratefully acknowledging how both then and always I have invariably found claims in which I have been concerned both courteously met and generously paid. But in the above case had those concrete floors been put in I am convinced the fire would have been localised and restrained, and this is to some extent confirmed by the other experience of my own with which I venture to trouble you, though these are experiences which no doubt all of us have gone through.

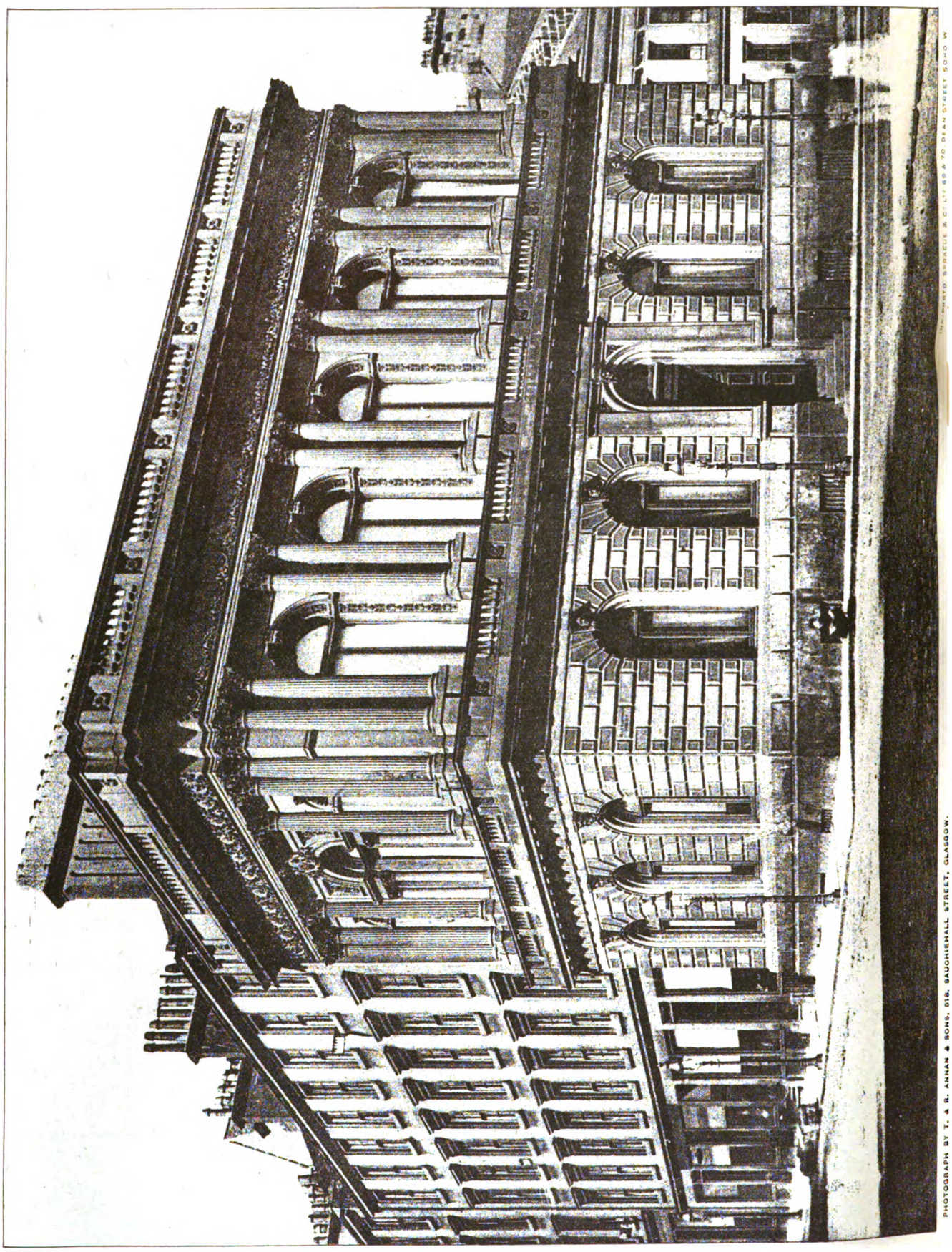
Some years ago I happened to be at a dinner party high up in a large block of flats then recently erected, with concrete floors, near Victoria Station. During dinner the waiter beckoned me out of the room to say there was a fire in the building and asking me to let my host know this. I did this as quietly as I could; we went out into the corridor; everyone put on their cloaks and proceeded to go downstairs, but were immediately stopped, as we were informed it was impossible to leave the building as there was a huge crowd outside and some twenty engines, and the doors once opened could not be closed again, while the resulting draught would greatly

* A Paper read before the Insurance Institute of London.

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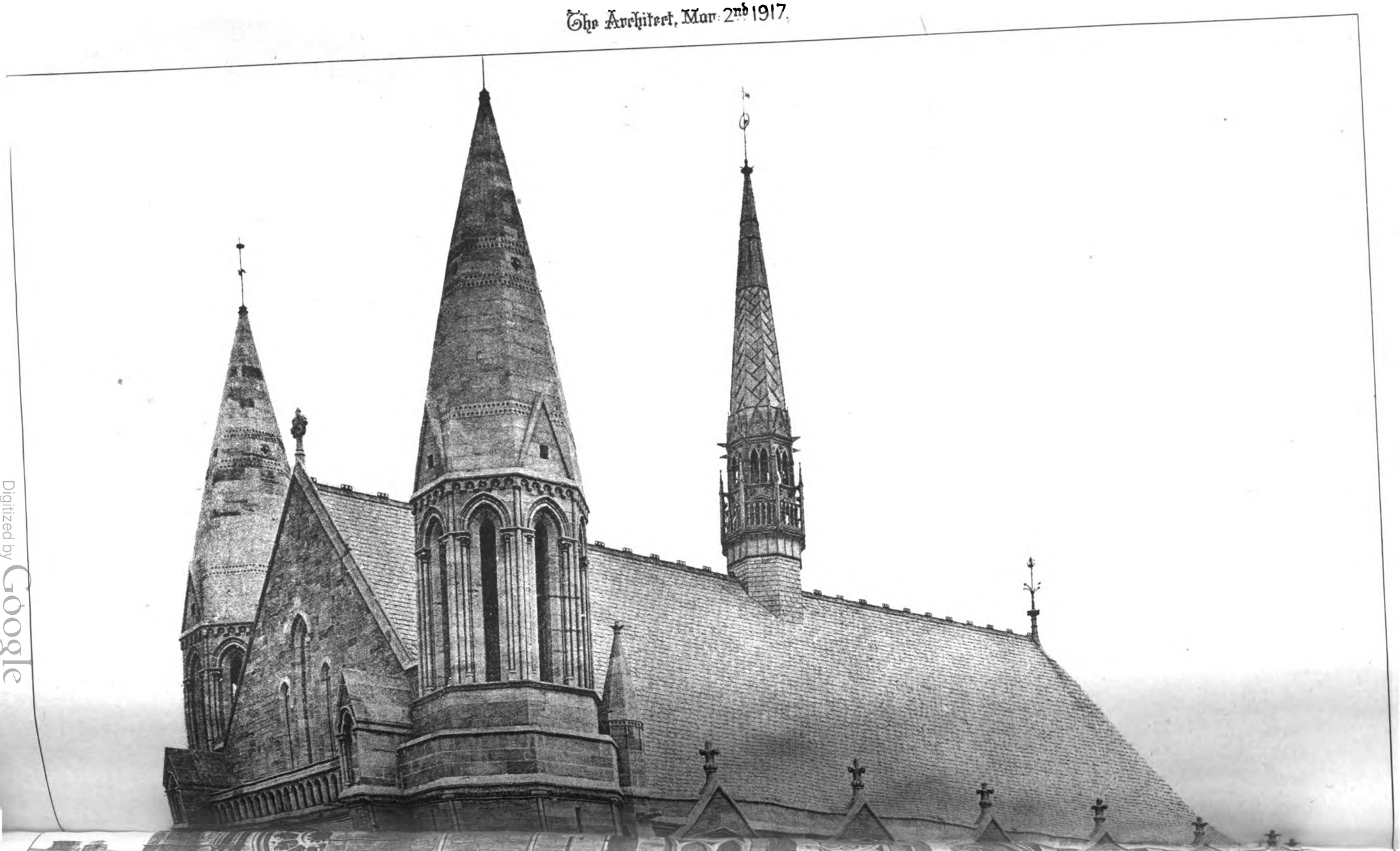


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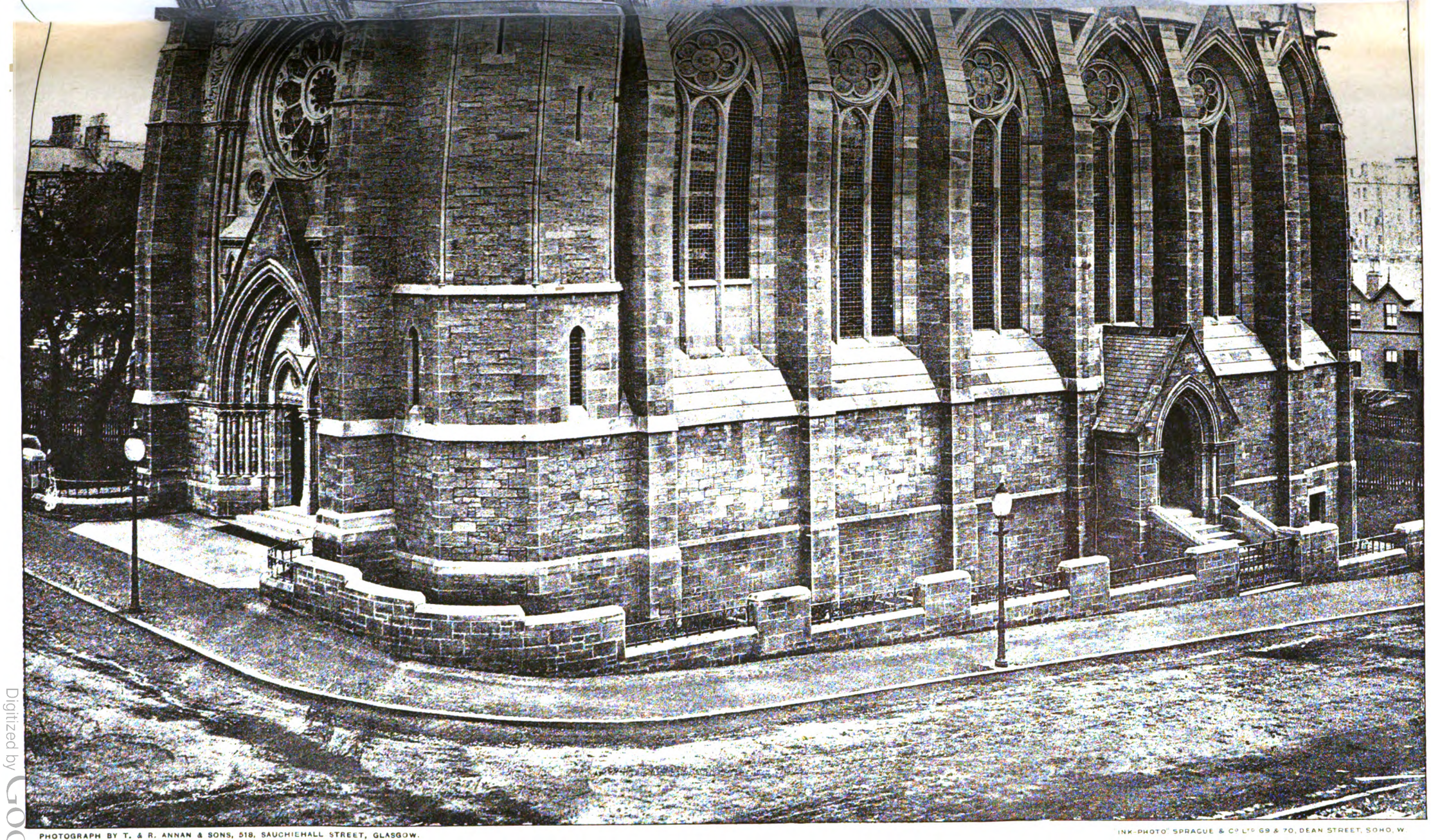
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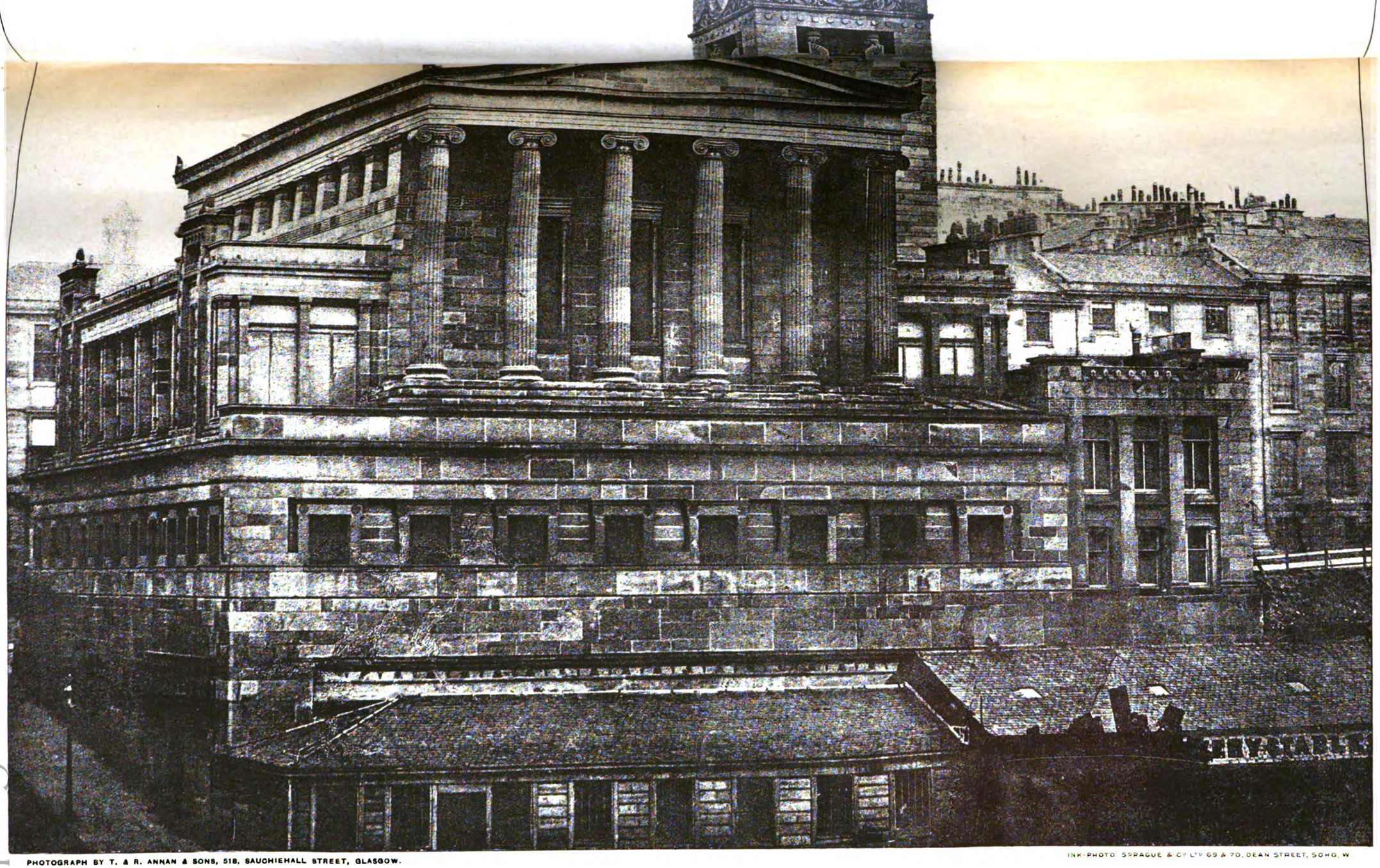
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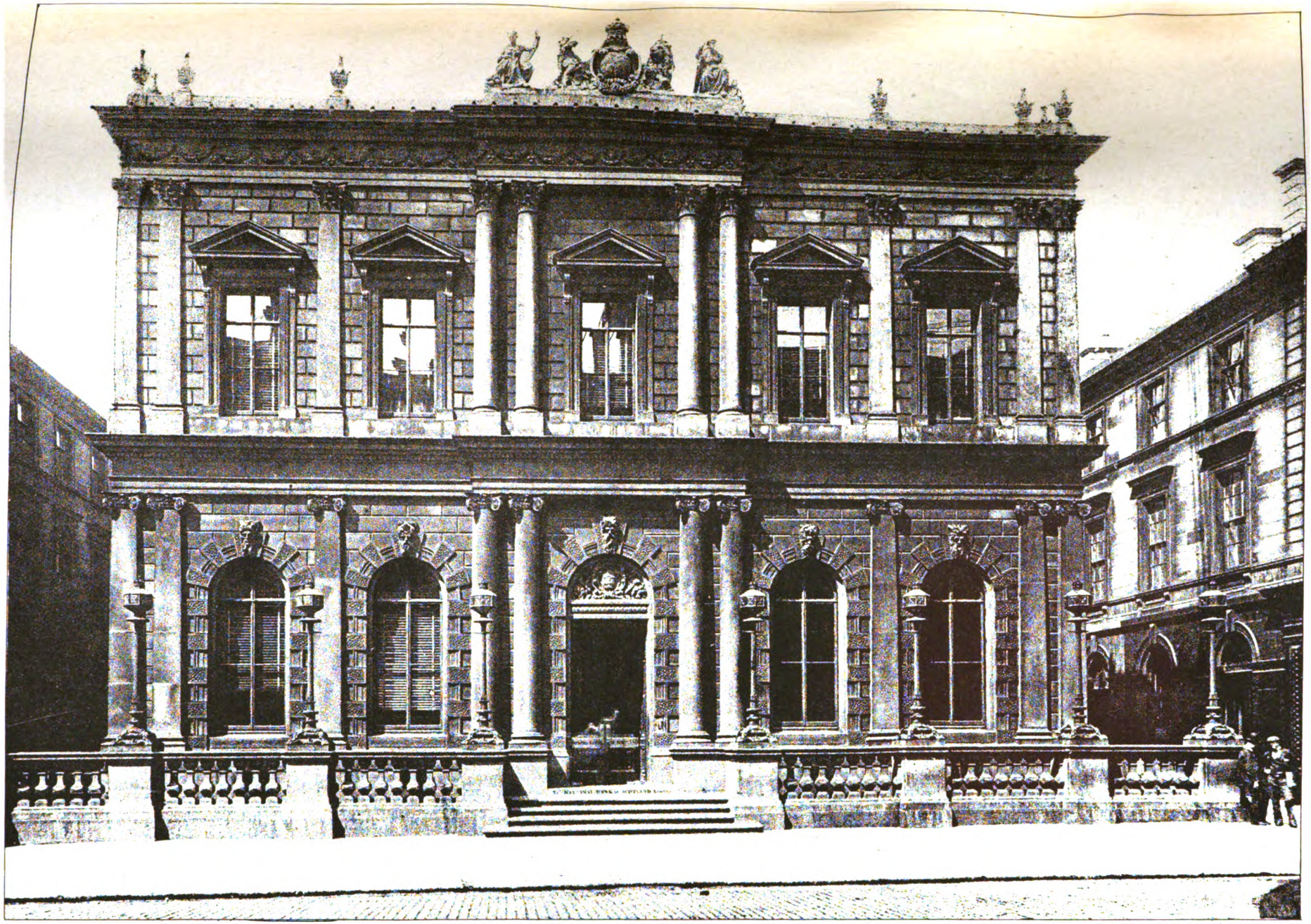
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NATIONAL BANK OF SCOTLAND BUILDINGS, GLASGOW.

Mr. GIBSON, Architect.

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fan the flames; so we remained where we were. The one flat was burned out and the fire was stayed, and much damage and loss of life I am convinced were saved by these concrete floors. Had they not been used I am sure that I should not have had the pleasure of meeting you here to-night, and yet within only the last two or three weeks I have visited a notable example of fire destruction and resistance, an immense building facing the Docks consisting of many floors and covering a large area, built externally with concrete walls, yet with wood-joist floors and roof carried on reinforced concrete stancheons and girders. This building caught alight after a munitions explosion, the roof and wooden floors are entirely consumed, together with the contents of great value to the nation at the present time, while the concrete walls, most of the stancheons and girders remain intact, and would have remained fully so if a more suitable concrete aggregate had been used. In one instance a portion of the outer wall for the height of the ground floor only was thrown down by falling machinery, the concrete wall above remains standing unsupported for a length of some 60 feet, a phenomenon that could hardly be obtained in another material, and one is tempted to ask how came such floors or roof on such a building.

I am well aware of the objections there are to concrete construction, especially for domestic buildings, the difficulty of driving a nail or cutting a hole, and in fact making any alteration in it, but with an increased demand for fire-resisting materials I am confident all these difficulties would be rapidly overcome.

At the Victoria and Albert Museum I was very anxious to avoid the use of the usual matchboarding to the walls as being a serious fire risk, and in its place I used Cranham bricks made of clay and sawdust, and to which any object can be readily fixed.

In a short paper like this I have only mentioned concrete especially as a fire-resisting material that affects buildings, but there are, of course, numerous others which should and could be employed, such as numerous hard woods and treated woods, steel plating to doors, thin steel in doors and partitions, fire-resisting glazing, asbestos pugging, and many other materials. All these would at once be largely employed and improved upon if some standardisation could be introduced and preferential treatment given in the matter of insurance to those buildings in which they were used.

Then would insurance have its due influence on buildings and their architecture, for fire-resisting materials do undoubtedly make for good building. Buildings so constructed would be sounder and more durable, more cleanly, and therefore, healthier, and as there is nothing that very properly influences the design of buildings more than materials, with new materials we shall have new forms of construction, new problems solved in an up-to-date spirit, and as the aims of those who lived in classical and mediæval times are handed down to us through their buildings, so our aims and our aspirations may be handed on and show to those that come after that we were not only students of the Past but pioneers also of the Future. "True lovers of the Past who do not scorn to take good heed to what the Future saith."

The United States, which have suffered so severely from vast conflagrations, such as Chicago, Boston and San Francisco, have benefited by their lesson, and are using fire-resisting materials wherever possible, and not only that but they are laying out their buildings on large and simple lines, and no one who has been over during the last few years can fail to have been struck by the great advances both in the laying out of their towns and in the scientific construction and design of their buildings. Their system of insurance is different to ours, but its beneficial influence on the better construction and arrangements of the buildings is the same.

Their insurance offices are monumental buildings with great halls of a most imposing character and calculated to impress those who use them with the dignity and importance of their purpose.

Here in England, too, I would like to bear testimony to the influence for good building the insurance companies have exercised in the buildings they have themselves erected for their own uses. The City of London has streets of palaces, many of the finest of them insurance offices. Unfortunately the streets themselves are so narrow and crowded it is difficult to see the buildings, but a walk through the City on a Sunday morning is a revelation, and a finer range of commercial buildings architecturally can hardly be found anywhere else in the world.

A friend of mine taking such a Sunday walk through the City one morning came across Lord Leighton, who had a great love for architecture, doing the same, and found him gazing at an insurance office building of singular refinement designed by an architect long since dead, and Leighton told my friend he occasionally came into the City on a Sunday in that way in order to refresh his senses with a study of this building. I will not mention the actual building, but I may say it is not a thousand miles from the Bank.

But it is not in the City of London only that the insurance offices have set so fine an example in their buildings; in every city and every town of importance throughout the country the finest buildings in its principal street will usually be the bank and the insurance office, relieving the street very often from a deadly and depressing dulness, setting a fine example of solid building to others.

It is for these and other benefits that we architects recognise so fully that we owe to insurance that we also venture to hope that by a little more co-operation in the future buildings may be still more influenced by insurance both to resist fires and save loss, to the great advantage of both those who insure and those who are insured.

ART IN LONDON.

MR. JACOB EPSTEIN'S SCULPTURES.

THE latest exhibition at the Leicester Galleries is one where we did not anticipate any pleasure in inspection; but, as is often the case, prospective imaginings and the prospect itself were not in accord. For, in fact, there is in some of the work displayed a sense of power and grasp that give evidence of the sculptor's abilities. If it be considered an ill compliment that the anticipation should have been displeasing, the explanation is to be found in the thought that the bulk of the work would be of a kind and on a par with the abominable obscurantism apparent in such work as "Venus," "Mother and Child," and the small carving No. 19. Work such as this is unworthy even of adverse criticism. The best items are plaster studies of Mr. Augustus John and Mr. W. H. Davies; these heads are modelled admirably and are full of esprit. Other good work is to be found in Nos. 1 and 8, portraying Miss Nan Condron, in a baby's head (No. 20), and in Nos. 7 and 10. Indeed, what is good and capable is not limited to the above; and if Mr. Epstein will for the future eschew the various fatal Artisms and keep to the style approved by centuries of masters, there will be no cause to delay one's footsteps when an exhibition of his works invites attendance.

Correspondence

[The Editor will not be responsible for the opinions expressed by Correspondents.]

Should Rents be Doubled?

SIR,—If everyone agreed to double the rents of their property the tenants would have to pay. Some would remove into smaller houses, but there are not sufficient of them to go round. After the war mortgage interests and rents will rise, but is it fair to commence raising the rents of the smallest tenancies first, or should an attempt

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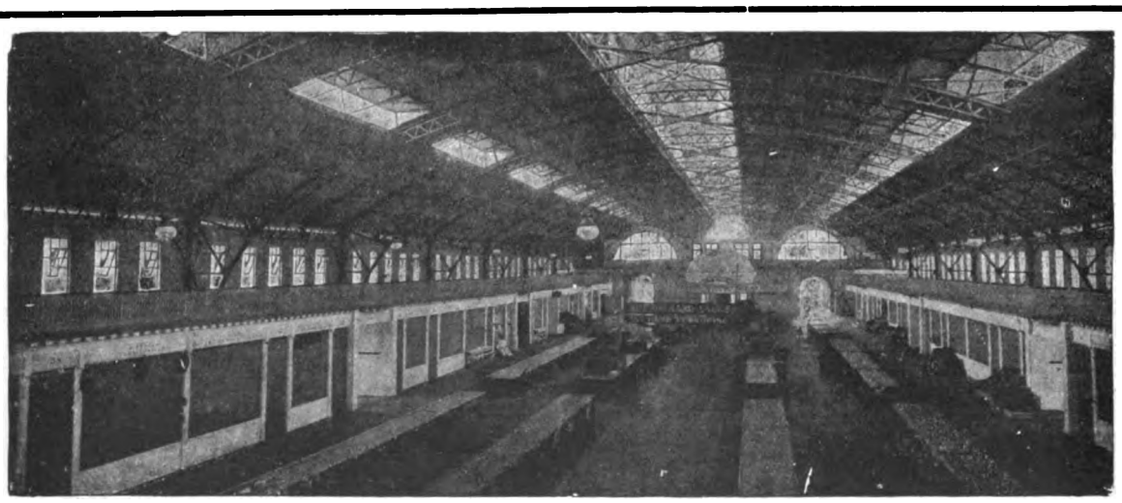
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be made now with the better-class tenants who are investing in War Loan while the landlord has his money locked up in property? An example will best illustrate my meaning: In pre-war times, when normal interest was 3 per cent., investors would build or buy property to show 5 per cent., which would leave them 4 per cent. net, 1 per cent. above the normal, and 1 per cent. for leakage and outgoings, and a freehold of £30 rent should secure a purchaser for £600. Now, and for very many years after peace, the cost of building will be one-third more. The same building would cost £800. But to-day, and for another generation, the normal rate of interest is 5 per cent., so that anyone building or buying on the same principle as before should ask 7 per cent. for his money. The current interest or rent, therefore, on the present and future cost of building the same house, would be £56, and a little extra for repairs.

Property-owners have everything to gain by a gigantic combination to double rents. If the tenants remain, they get double their income, and the rates are halved in consequence; or, if some tenants leave, practical necessity will compel half to remain, and the income will be the same until the remainder are gradually let. The tenants also will be encouraged to buy their houses with the help of their building society, or they may employ the building trade by building for themselves.

When it is realised that the rents of larger properties have been doubled (as have provisions and other commodities), the cottager will not consider himself ill used if the action of the mortgagee compels the landlord to double his rent after the war, and it is fallacious reasoning to irritate tenants by continually raising their rents 25 per cent. at a time.—Yours, &c.,

W. H. WOOD.

Queen Square House, Leeds: February 21, 1917.

The Architectural Association Red Cross Detachment (London 43rd).

SIR,—With talk of National Service in the air, most of your readers are doubtless asking themselves how they can best use their energies to the National good. May I bring the claims of the Architectural Association Red Cross Detachment before these, as we are badly needing more members?

The value of the work which the Detachment is doing cannot be over-estimated. Those members we have are working very hard, but it will not be possible for them to cope with all the duties which the Detachment is called upon to perform unless their numbers are increased. We appeal particularly to members of the architectural profession to join us, and I am certain the only regret of those who respond will be that they did not come forward earlier and help in what is surely one of the finest branches of voluntary work that can be undertaken at the present time.

If there are any whose sympathies are with us, but who are prevented from becoming members by age or distance from town, they can give practical evidence of their sympathy by sending donations, either for the general funds of the Detachment, which always need augmenting, or by subscribing towards the ambulance which we are hoping to buy from funds raised by our members, for use in connection with the Detachment work.

Communications should be sent to me at the address given below.—Yours, &c.,

F. R. YERBURY, Quartermaster.
Architectural Association Red Cross Detachment
(London 43rd),
37 Great Smith Street, Westminster, S.W.

A BRONZE bust of the Welsh poet, W. H. Davies, by Jacob Epstein, which is now being shown in the exhibition of this sculptor's work at the Leicester Galleries, has been presented by the Hon. Evan Morgan, Lord Tredegar's heir, to Mr. Davies' native town, Newport, Monmouthshire.

BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

ENGLAND.

BEDFORDSHIRE.

Bedford.—Nos. 83 and 85 Hurst Grove: additions and alterations for Messrs. W. H. Allen, Son & Co., Ltd.

Motor garage at No. 51 Iddesleigh Road, for Mr. G. Childs.

Luton.—Factory, Kimpton Road: additions for Vauxhall Motors, Ltd.

Factory, Taylor Street: extension for the Thermo-Electric Ore Reduction Corporation, Ltd.

Premises, Park Street: addition for Frickers Metal Co.

Store, Dallow Road, for the Davis Gas Stove Co., Ltd.

Works, Kingsway: extension for Messrs. B. Laporte, Ltd.

Workshop, Windsor Street. Mr. C. Jeyes, builder, 27 Windsor Street.

BUCKINGHAMSHIRE.

Aylesbury.—Offices, stores, garage, stables, &c., Haydon Hill and Southern Road, for Mr. J. Putman.

CORNWALL.

Crowlas.—Wesleyan chapel: restoration. Messrs. Cowell & Drewitt, architects, Lennard's Chambers, Penzance.

DURHAM.

West Rainton.—"Laburnam House": alterations for the Rainton Colliery Company.

ESSEX.

Saffron Walden.—Shop, Victoria Avenue: additions and alterations. Messrs. Bell & Sons, builders, South Road.

Upminster.—"Ardenholme," St. Mary's Lane: additions for Mr. H. G. Wright.

Gaynes Cross Cottage, Corbets Tye Road: addition for Mr. H. Joslin.

HAMPSHIRE.

Portsmouth.—Five houses, Haslemere Road, for Mr. J. C. Juniper.

HERTFORDSHIRE.

Watford.—Lloyd's Bank, Market Place: alterations.

HUNTINGDONSHIRE.

Fletton.—Factory: addition for Mr. H. F. Atkins.

KENT.

Margate.—Laundry, Eaton Road: additions for Mr. W. B. Wilkins.

LANCASHIRE.

Manchester.—Elementary school, Salford (£20,000). Borough architect.

NOTTINGHAMSHIRE.

Mansfield.—Sherwood Foundry, Bottle Lane: additions for Messrs. J. Maude & Co.

Motor garage, Eakring Road, for Mr. E. Singleton.

STAFFORDSHIRE.

Walsall.—Offices, Green Lane, Birchills, for the Talbot Steel Tube Co., Ltd.

Wolverhampton.—Motor house, Parkdale, for Mr. G. G. Crombie.

Stores, &c., Upper Villiers Street, for the Sunbeam Motor Car Co., Ltd.

SURREY.

Barnes.—Factory, Fitzgerald Avenue, East Sheen: additions for Mr. J. W. Clame.

YORKSHIRE.

Bridlington.—Workhouse alterations. Mr. S. Dyer, architect, 29 Quay Road.

WALES.

Cardiff.—University College: chemical laboratory (£25,000).

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THE ARCHITECT

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FORTHCOMING EVENTS.

Monday, March 12.

Royal Society of Arts: Aldred Lecture II., "Memorials and Monuments," by Mr. Lawrence Weaver, F.S.A., at 4.30 P.M.

Institution of Civil Engineers: Lecture entitled "Foreign Trade and its Relation to the Investment of Capital Abroad," by Mr. Edgar Crammond, at 5.30 P.M.

Surveyors' Institution: Adjourned discussion on Paper on "Defence of the Realm (Acquisition of Land) Act, 1916," read by Mr. Edwin Savill. To be re-opened by the Right Hon. the Lord Parmoor of Freith, P.C., K.C.V.O., K.C., at 5 P.M.

Wednesday, March 14.

Manchester Society of Architects: Paper entitled "The Social Aspect of Architecture," by Mr. Lawrence Haward, M.A., at 6.30 P.M.

Carpenters' Hall: Lecture entitled "Some Recent Additions to the National Collections," by Mr. Charles Aitken, at 7.15 P.M.

THE BRITISH INDUSTRIES FAIR.

THE general interest in this exhibition lies in the fact that it marks the progress that has been made by British manufacturers in the production of goods that have in the past been especially the profitable subject of activity by enemy nations. It cannot be said to be representative of British industry as a whole, being restricted to the following trades: Toys and games; earthenware, porcelain and china; glass and glassware; fancy goods; stationery and printing. Even with regard to these trades the representation can scarcely be said to be complete, particularly, for example, in respect of glass and printing, of which it may be said that it is mainly the "luxury" branches of the trades that are represented.

It might seem to be somewhat ironical that whilst the Government on the one hand is scheduling certain occupations as "restricted," and appealing to all and sundry to enrol for National Service, it should at the same time, on the other hand, through the Board of Trade, apparently be extending encouragement to the development of non-essential or luxury trades. With the exception of laboratory glass there is scarcely a branch of the manufactures included in the exhibition that is directly essential for winning the war. It is, however, one of the difficulties of the national situation that, whilst we are straining every effort to win the contest in destruction, we must be making preparations for the ensuing economic conflict.

That the show last year was a success from the manufacturers' point of view may, we think, be accepted from the great expansion of the Fair this year, necessitating an overflow from the available space in the Victoria and Albert Museum to a considerable area in the Imperial Institute. The space in this latter building is wholly devoted to toys and games, in which trade there are 159 exhibitors, which might give the impression that this is the greatest of British industries, but rightly regarded, indicates that herein lies an exceptional opportunity for ousting the enemy alien.

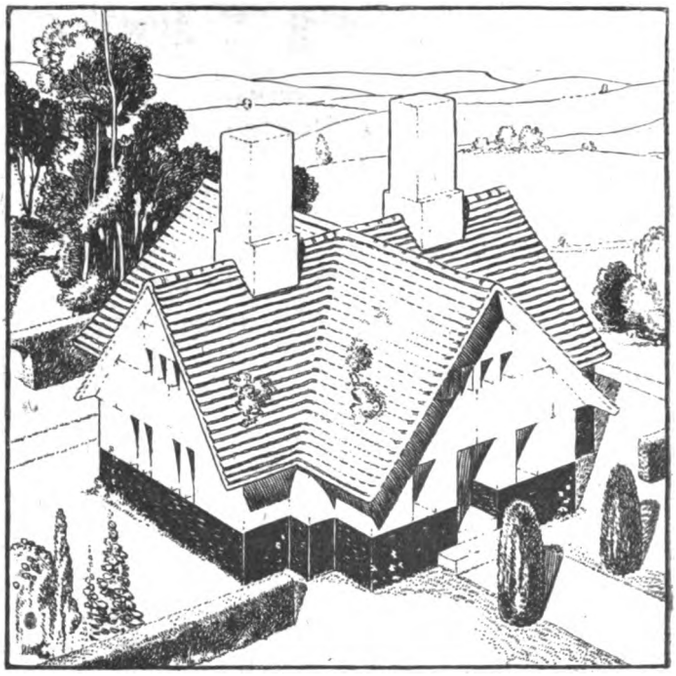
In this section of the exhibition there is little that calls for special comment in our columns, beyond the effort made to teach the primary essentials of architecture in the production of Lott's Bricks, wherein the assistance of Mr. Arnold Mitchell has been obtained to instil into the minds of children a right appreciation of good structure and architectural form. We illustrate two



examples of the toy buildings that our infant architects are now enabled to construct in place of the vile contaminations of taste that German Kultur has hitherto provided. There is even not a little of suggestiveness for architects of mature age in the designs that Mr. Mitchell has produced under the limitations in material imposed by toy bricks.

In the Victoria and Albert Museum section of the Fair there is rather more that concerns architects and architecture than in the toys department, but even so there is not very much worthy of comment. We are glad to note that English makers are now making successful efforts to supply us with lead pencils at what we may regard as the normal price of 4*d*. each, or 3*s*. 6*d*. a dozen, and of at least equal quality with the German and Austrian articles. Messrs. B. S. Cohen, Ltd., with their "Imperial." Messrs. Geo. Rowney & Co., with their "King's Bench," the British Pencil Co., Ltd., and Messrs. F. Chambers & Co., Ltd., are now catering for the architect's pencil market. The well-known "Chin-Chin" and "Pelican" drawing inks have now, as far as this country is concerned, passed from their foreign manufacturers, and are being produced by the British Drawing Ink and Adhesives Manufacturing Co., who also make a useful mountant for tracing paper and cloth.

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In high-class drawing-paper our British manufacturers have long held their superiority and acquired prestige, but Messrs. Henry Allnutt & Sons and Messrs. J. Barcham Green & Son make a bid for our recognition of some special varieties. The Art and Medical Brush Manufacturing Co. specialise as makers of camel-hair brushes for all art as well as medical purposes, whilst Geo. Rowney & Co., of course, still hold their high position as makers of all kinds of brushes for the use of artists.

Building materials are but sparsely represented. Messrs. Carter & Co., Ltd., of Poole, have a good show of their many varieties of tiles, mosaics, faience, and other ceramic products. Booths, Ltd., of Tunstall, amidst their china and porcelain goods, include also some non-crazing art tiles. Reginald & Adelaide Hallward exhibit specimens of their artistic craft in stained and hand-painted window glass, and in stencils for room decoration. Artree' crafts (A. J. Rowley) show examples of the Rowley wood inlay decorative panels. The Berkefeld Filter Co. (British) give evidence of their position as "manufacturers of the 'Berkefeld' filter in all the different patterns previously made by the German company, but now of entirely British manufacture and British owned."

NOTES AND COMMENTS.

THE days fixed for sending in works intended for this year's Royal Academy Exhibition are as follows:—Water Colours, Pastels, Miniatures, Black and White Drawings, Engravings, and Architectural Drawings, Friday, March 30; Oil Paintings, Saturday, March 31, and Monday, April 2; Sculpture, Tuesday, April 3.

All works must be delivered at the Burlington Gardens entrance. None will be received at Piccadilly entrance. Hours for the reception of works, 7 A.M. to 10 P.M. Forms and labels can be procured (during the month of March only) from the Academy. Applications by letter must be accompanied by a stamped addressed envelope.

Our readers will remember that in our issue of February 23, we announced that this year photographs will be admitted to the Architectural Room.

At a special meeting of the Council of the Manchester Society of Architects held on Friday, March 2, the following resolution was passed:—The Council of the Manchester Society of Architects learns with profound regret that a Committee of the Corporation proposes to utilise the "Old Infirmary Site" as a Tramway centre. It enters a strong protest against the scheme for making a Tramway centre and erecting buildings on it in the manner set forth on the plan published in the report of the Special Committee on the Passenger Transportation Problem, and presses for a further consideration of the whole matter with a view to carrying out the scheme for which the Infirmary Site was specially purchased.

Mr. T. L. Watson writes in the "Glasgow Herald": "There has never been in our day, and may not soon be again, such an opportunity as we have to-day of seeing the Lower Church of our Cathedral, a work of unequalled beauty and interest. Certain repairs being in progress, the masons have the use of electrical lighting, and it is not difficult to realise something of the effect of the building during the services of the Church for which it was designed. Even now the illumination of the middle vault against the shadowed background of the surrounding aisles makes a picture more beautiful than Rembrandt ever dreamed of, and I suggest, not for the first time, that some measure of permanent lighting should be installed. It would be worth a pilgrimage to the building to see it lighted even for one hour out of the twenty-four, and it could be done now practically without trouble or expense. The wiring and the lamps are there, and all that would be required would be the judicious arrangement of the latter. The Undercroft is 'a jewel of gold,' but I should be sorry to hint at the reproach to the community involved by its continued envelopment in thick darkness.

At a meeting of the London Society held last Friday at the Royal Society of Arts, Mr. Walter H. Godfrey gave a lecture on Chelsea, illustrated by lantern slides. He declared that it was Sir Thomas More who might be said to have discovered Chelsea, for it was he who drew fame to the place. Slides were shown depicting Sir Thomas More's home, the Old Church (St. Luke's), the riverside with its early houses and their occupants, the Physic Garden, which was originally the botanic gardens of the Apothecaries' Company, and still thrives; the Royal Hospital, Paradise Row, Cheyne Walk, King's Road, and other places in the "Village of Chelsea," where so many famous people of the past resided. In a brief discussion which followed General Sir Neville Lyttelton (Governor of the Royal Hospital) mentioned that in the Great Hall could be seen a good picture of Vandyke. It came into the possession of Colonel Ireton, Cromwell's son-in-law, and was sold by him to the Governors of Chelsea Hospital for £45. Carlyle, writing to his friend Sterling about a year or two before his death, said that, although he had been living in Chelsea for forty years, and passing the Hospital many times a week, it was only recently that he discovered it.

At a meeting of the British Archæological Association held last week, Mr. Francis Weston read a paper on "Old Pewter Plate," illustrated by English and Scottish specimens and a dish bought in the market-place of Ghent by the Bishop of Barking. He explained how Edward III. became the patron of the pewterers' craft when he created the Dukedom of Cornwall for the Black Prince, and opened the long dormant mines, which, with the pewterer at hand, provided a revenue for the King's son. From that time forward the craft flourished. The Civil Wars however, wrought havoc with specimens of the art, for while the silver plate was melted down for money, the pewter plates were turned into bullets, and the Great Fire of London helped the clearance. Specimens of the sixteenth and seventeenth centuries were of the utmost rarity.

Some time ago we drew the attention of our readers to the Standard-Unit Steel Construction System (Reid Unit System), introduced by Messrs. F. Braby & Co., Ltd., of Glasgow. The capabilities of this system are now amply illustrated in a well-got-up catalogue, which shows many quite remarkable possible applications to a great variety of structures.

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Though late in the day the city of Coventry has at length made a start in the establishment of a public museum. At present the accommodation is restricted to an apartment known as the Armoury in St. Mary's Hall. This can only be regarded as a storehouse, since it is quite unsuitable for public exhibition purposes. The room itself needs rehabilitation even as an example of ancient architecture. We hope that after the war steps will be taken to expand the present nucleus into a local museum worthy of the historical interest of Coventry.

The sixty-eighth annual report of the Prudential Assurance Company shows that the business of this great institution continues to grow, though the profits of the shareholders are reduced under war conditions, and particularly through the strain imposed upon the company by the operation of the Courts (Emergency Powers) Act and the necessity of reserving funds to meet the liabilities which this Act creates. As with all large business concerns, and also, we may say, many small ones, the work of the company has been rendered arduous by depletion of staff, more than ten thousand men having gone from the company's service to the fighting strength of the nation.

Inasmuch as the building trade has been largely subject to the peaceful penetration of enemy manufacturers and merchants, the report of the Enemy Influence Sub-Committee of the Unionist War Committee is of interest to those architects and builders whose patronage of foreign goods has been too often unwittingly given to enemy concerns of artfully concealed origin.

The recommendations of the Sub-Committee are as follows:—

1. That businesses of enemy character or association owned or controlled by naturalised persons should be made amenable to the law, by giving the Home Secretary power to revoke certificates of naturalisation on the ground of public policy.

2. That the Court should have power on application by the Board of Trade to compel witnesses to appear on oath before the Board of Trade or its Advisory Committee or otherwise and to produce documents.

3. That agreements for the transfer of businesses made during the war by enemy subjects or by naturalised persons whose certificates are revoked should be void unless made bona fide and for valuable consideration, and consistent with public policy, the onus of proof to be on the parties to the agreement.

4. That the powers of the Board of Trade should be extended so as to enable them to deal with businesses which at or immediately before the commencement of the war were carried on for the benefit or under the control of enemy subjects and not merely with those businesses which were so carried on at the date of the passing of the Act.

5. That the Board of Trade should have power to wind up a branch of any firm or company, neutral or otherwise, whose principal place of business is in an enemy country.

6. That the Board of Trade in cases where it has made an order to wind up the *business* carried on by a British company in this country should also have power to wind up and dissolve the *company* itself.

7. That the Board of Trade should have power to wind up any business, although not under enemy control, that has been conducted wholly or mainly in the interest and for the benefit of the enemy.

8. That any amendment of the law should, if possible, take the form of a Consolidation Act and not of legislation by reference.

THE 800th anniversary of the foundation of the Third Minster Church (the Cathedral), Peterborough, will occur on Monday next. The observances of the anniversary will be almost informal. There will be a celebration of the Holy Communion at 8.15 A.M., and at evensong special psalms, lessons, and prayers will be used, and an appropriate anthem sung. The Dean will give a brief address.

ILLUSTRATIONS.

QUEEN'S PARK U.F. CHURCH.
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BANK OF SCOTLAND.

IN continuation of the illustrations to Mr. John Keppie's lecture on "Glasgow Architecture," we now present views of the above buildings.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

AT the special general meeting held on Monday last the President in opening the proceedings said: This is a special general meeting summoned in accordance with By-law 70 to elect the Royal Gold Medallist for the current year. As already announced the Council have nominated for the honour, Monsieur Henri Paul Nenot, Honorary Corresponding Member, Paris. This year when it had been decided that the name of a foreign architect should be put forward it seemed impossible for us to overlook the paramount claims of M. Nenot. His magnificent buildings for the University of Paris, the new Sorbonne, stamp him as a great creative artist, and it is a highly valued privilege that we should have the opportunity through His Majesty's gracious bounty of showing our appreciation of his genius. I will not on this occasion go into details of his distinguished career. These will come in more fitly in the Address to be delivered at the presentation in June. But I may mention that his merit has won for him high honour at the hand of his own countrymen. He was awarded the Grand Prix de Rome in 1877, was elected member of the Institute of France in 1895, and holds the exalted position of Inspector-General of Public Buildings and National Palaces in France. He has the further claim to our regard that he was in the fighting against Germany in the war of 1870 and was awarded the Military Medal for gallantry.

I will now move my resolution in the terms of the notice printed in the Journal:—

"That, subject to His Majesty's gracious sanction, the Royal Gold Medal for the promotion of architecture be presented this year to Monsieur Henri Paul Nenot, Membre de l'Institut de France (Hon. Corr. M., Paris) in recognition of the merit of his executed work."

Mr. E. Guy Dawber, Hon. Secretary, seconded the motion and the resolution was thereupon put from the chair and carried unanimously.

This concluded the special general meeting.

At the ordinary business meeting following, the Hon. Secretary, Mr. E. Guy Dawber, said: I regret to announce the decease of Charles Trubshaw, who was elected Associate in 1865, Fellow in 1882, and was placed on the list of Retired Fellows in 1908. Also of Henry Greig Badenoch, of Newcastle-on-Tyne, Fellow, elected 1907.

I feel sure that members would wish to testify their sympathy with our esteemed Fellows, Mr. Richard C. James, of Bristol, Mr. W. G. Rowan, of Glasgow, and Mr. H. Heathcote Statham, all of whom have recently lost sons in the war. Mr. James has lost his only son, aged 19, Second-Lieut. Donald Croft James, of the Gloucester Regiment. Mr. Rowan has been informed that his eldest and only surviving son, Private George Neill Rowan, 5th Camerons, formerly reported wounded and missing at the battle of Loos, must now be regarded as killed in action; and Mr. Heathcote Statham has lost his third son, a young man of brilliant promise, Lieut. Noel Horner Statham, of the East Surrey Regiment, aged 24. I beg to move that a message expressive of our deepest sympathy with them in their bereavement be sent on behalf of this meeting to Mr. James, Mr. Rowan, and Mr. Heathcote Statham.

AT Busbridge Parish Church, Godalming, the Bishop of Winchester dedicated a stained-glass window to the memory of Second Lieutenant Charles Henry Tisdall, Royal Sussex Regiment, who was killed at Ypres when rescuing one of his men.

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EDUCATION OF THE ARCHITECT.

The adjourned afternoon conference arranged by the Royal Institute of British Architects at Conduit Street, W., took place on Wednesday, February 21, under the chairmanship of Mr. H. V. Lanchester, F.R.I.B.A. A report of the previous discussion appeared in our issue of February 16.

Mr. Lanchester, on taking the chair, after giving a rapid survey of the various speakers at the opening debate, said that in his opinion those attending the informal R.I.B.A. conferences would be best employing their time not in endeavouring to draft resolutions nor in framing a definite policy, but rather in eliciting ideas on the matter in hand, and thus providing data for those, both within the Institute and outside it, whose qualifications impose on them the task of remodelling and amplifying existing procedure. In one sense the education of the architect cannot begin too early. It has been claimed that the faculty of observation essential in every branch of art must be encouraged as soon as it appears. It frequently is, only to be smothered by ill-devised educational methods at a later stage. The appreciation and comprehension of the facts by which we are surrounded, and their relationship measured in time and space is the true object of education, and the observation necessary to acquire this should be in play throughout. Book studies are only useful in so far as they facilitate and quicken this. The substitution of book studies for the actual factors of life is disastrous to mental development, but this is too often the effect of the conventional type of education. Of course, specialised training may come comparatively late, but if the previous instruction has been on sound lines not only will the special studies be more easily assimilated, but the bent of mind will be much more obvious when it comes to the choice of an occupation. Apart from the cases when a youth is for extraneous reasons drawn into a profession for which he is unsuited, there are far too many in which this occurs through lack of the means of knowing what his natural qualifications are, these having been obscured by a false system of education. Professor Fleurs suggests there should be a period of State service according to capacity, on no account necessarily military, in order that the function of citizenship, in its broadest sense, should be appreciated. Whether this be practicable or not, in some way or other the sense of communal life in qualifying individual aggrandisement should be acquired. Much as one would like to assume as a basis the type of preparatory education previously hinted at, this is at the present moment so rare that such an assumption will detract from the utility of our proposals. It is only practicable to start from the existing average, noting by the way the broader variations in antecedent training. Now this antecedent training usually falls short in affording no real knowledge of life and its realities, both material and social, so that professional education must endeavour to supply these deficiencies. Knowledge of actual and material conditions, as the simpler of these two aspects, comes earliest; and some of our technical schools deal fairly comprehensively with this, though there are still many districts where such preliminary training is inadequately provided for, while the R.I.B.A. examinations are deplorably defective as tests of this kind of knowledge. It might be possible to pass the Institute examination without being able to distinguish between a lump of lime and a piece of plaster, or a malleable casting and a wrought scroll. When we come to the question of design as an aspect of social economy the business becomes more difficult. The factors that influence the standards of beauty, a complex of traditional method and logical expression, are not easily balanced, and even our leading schools of thought are not altogether at one. Then again, even among the best architects but a few are capable of imparting the skill they possess in a comprehensive way, and it follows therefore that the ultimate point at which knowledge can be imparted will only be reached by a proportion of those who have qualified to join the ranks of the profession. Briefly, out of the many legitimately engaged in architectural work the architects will always be few. Thus we see the necessity for a grading of the schools where studies leading up to architectural practice are dealt with.

Mr. A. E. Richardson in formally opening the subject of the conference said he thought there was every reason to be proud of what had been done to encourage the young architects to make themselves acquainted with the innumerable branches of their profession. Much, however, remains to be achieved for the improvement in teaching, especially in the higher divisions of theory and practice. It has always been the policy of this Institute to encourage a blending of the strictly utilitarian with the ornamental and the beautiful. These two factors can never be disassociated, for building is as much a science as it is an art. The question before the meeting was not to decide whether building is an art or a science, but so to order its study that it will become a highly scientific art. The student who has been encouraged to consider the manifold branches of his profession in regard to their ultimate purpose is surely better equipped for dealing with intricate problems than one who has little idea of co-ordinating these very essential factors and incorporating them into an ordered work of public utility. The architect must acquire a deep knowledge of materials and new methods of construction, the handling of which with skill and confidence will ensure greater perfection in his work. This is the routine side of architectural education, not that the design side is one wit less important, it is universally acknowledged to be the more difficult. The weakness of the present system inheres in the fact that sufficient attention has not been given to the correlation of the two branches.

As an honorary R.I.B.A. examiner in design for the past five years and speaking from experience in this regard, he could say that only those students passed the test who had enjoyed the benefits of training at the leading schools and showed an appreciation of construction and its relation to conception. Acting on the suggestion of the examiner in construction, Mr Redfern and the speaker collaborated with that gentleman in order that the questions in both subjects should have some relation the one to the other. The results were very encouraging. Perhaps this system will be further extended to include the other subjects.

When we consider the newer responsibilities facing the architect to-day, we realise how essential it is that he should be thoroughly trained and acquainted with the many and intricate ramifications of practice. There are, nevertheless, limitations to his capacity, and it is the duty of this Institute as an advisory body, granting a degree of proficiency to suitable men, to define what these limitations are. If it is true that education on the mechanic side needs careful revision and adjustment, it is more than urgent that the higher branches of training, namely, investigation of history bearing on design, and the sphere of design proper, should receive increased attention: for English architects have a reputation in the one branch, and not in the other. We have at this juncture unique opportunities of studying the latest modern expression in building in France and America.

The trained and scholarly builders of both countries have realised that construction is subordinate to conception, and are content, in all humility, to compete with the masterpieces of tradition, and to fashion the bodies of their buildings according to the taste and judgment of centuries, while employing recent discoveries in materials and science to the making of the skeleton. Does this not clearly show that a new system of architectural expression is beyond the scope of the individual, and that the underlying laws of architectural composition, call it the scientific ordering of parts if you like, are immutable? Concept, and power to reason, together with the logical apportioning of the factors determined by diverse problems, is the basis of building.

In the encouragement of architectural training it is essential that renewed attention should be given to the

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appreciation of modern life. Following the custom of the French, students should be taken by their professors to great modern buildings there to observe the mysteries and working in being.

In France a more academic system pertains. In the first place there is the tradition of the Grand Prix with its almost unbroken succession of monumental planning, and secondly a more humanistic attitude to the requirements of the populace, and greater collaboration between architects, engineers, painters, sculptors, writers, and politicians. The politician is included, for his influence is all-important in insuring the smooth running of the educational machinery. In France architecture is just as much a part of the national outlook as literature. Both expressions are understood by all classes in varying degree, and a certain momentum to practice is ensured, irrespective of local custom and prejudice.

It must be constantly borne in mind that the mechanic side is subordinate to the theory of conception. The architect trained to consider problems in this way is able to approach the subject in hand with a defined perspective of the conditions. He assumes an air of disinterested attachment to the facts of the programme, which he has marshalled in battle formation. When, and how, the conception is born cannot be determined; sometimes it appears unannounced, and at others it is the result of ceaseless labour and the discarding of scheme after scheme. Knowledge of what has been done before, acquaintance with precedents, and an ever-present view of the programme gives confidence; but it is always the same for master and tyro: both have to labour for results. A plan studied and wrought for on the lines given is a scientific work of art. While he works the designer is considering the relation of part to part and the harmonious patterning of the whole; he visualises in mental perspective the vertical aspects of his plan formation. The two attributes are one and indivisible. It can be argued with some certitude that recent French architecture is not distinguished for elevational treatment, and this in a degree is true, for although academic planning has been brought to a high pitch of development, the scholarship that formerly attended the vertical and outward character of French architecture during the eighteenth and nineteenth centuries, and on to so recent a period as 1884, with the exception of the works of Messieurs Pascal and Nénot, does not appear convincing. Having conceived a suitable plan formation, and achieving a solution capable of giving the best results of perspective, as well as convenience for the circulation of internal traffic, the Frenchman next approaches the problem of scientific construction, for he has arrived at the stage when there is something to construct. Then he gives orders for the battalions of materials, the dumps of steel, concrete and masonry, the miles of drains, electric wiring, joinery and other finishings, to move to their stations and do their part. Then he applies his theorem of mechanics, of acoustics to the parts of his design to test the shaping and prove his graphic display.

It is all a question of common-sense and logical reasoning. What is true of French practice applies with equal meaning to the astonishing development of architecture on the grand scale in America; with this reservation, the American scientists have a more subtle regard for character and their astute scholarship in working on the larger European tradition has brought them to the right road.

While entirely in agreement with the ideas advanced at the last conference, regarding the application of scientific knowledge to buildings, Mr. Richardson said it is not possible to entirely concur with the idea that this theory has altogether been ignored in the past. There is doubtless room for great improvement, but it must not be at the expense of the larger issue of design.

If there is a branch of training that needs revision in addition to the mechanical side, it is the one embracing the investigation of history. Whether the time is mature in this country for the consideration of one general style, a policy encouraged in France, is a matter of discussion. But it is obvious that existing methods of teaching architectural history, by treating the phases as phenomena, is wrong. The investigation of history as an aid to accomplishment in the practice of building should proceed on the lines of adaptation to modern needs. The family likeness of all buildings evolved during the past three thousand years should be brought to the notice of the student. Marked developments such as the classics of Greece and Rome, the idylls of the Renaissance, and the modern classics of Europe and America should receive fuller attention than they do at present. This is essential if we are to advance either in construction or design, and just as the parallels of the classics offer consolation to us in these times so the buildings of the past can be referred to to inspire confidence for the future. Evolution is the only true theory that can be followed, and its manifestations studied with advantage.

One outstanding fact remains to be discussed, and that is the promotion of healthy competition between the individual students of recognised schools and friendly rivalry encouraged between every university and training college where building is studied, either through the agency of monthly competitions and exhibitions or public criticism of the works on exhibition by the eminent men of the profession. Another suggestion is that the drawings made by a student for the Prix de Rome or any of the Institute prizes, in the event of their receiving an award, should become the property of the Institute or the university, and should be accessible to every student for reference. In our appreciation of the concrete side of tradition, the importance of a tradition based on unexecuted work is apt to be overlooked. Yet this is just as much a guide to national progress as work actually carried into being. The value of the paper tradition in France is continually asserted, for the authors of the Grand Prix designs invariably incorporate unique features of their prize schemes into the buildings they are commissioned to design in later life. Evidence of this procedure is to be seen in Monsieur Nénot's Amphitheatre in the Sorbonne, which is noted for its D-shaped plan.

The new Pennsylvania Railway Station illustrates his point, said Mr. Richardson in conclusion, more effectively than lengthy arguments. Here can be seen that combination of science and art in which the engineer humbly performs his part and interprets the Pausanian rhetoric of the chief builder.

Professor Beresford Pite remarked that the audience had heard a mass of generalisations, interesting, perhaps, but of doubtful practical or educative value. The flood gates had been opened. If one came to the real thing and asked oneself straight questions as to our educational programme it would be very difficult to derive any information from Mr. Richardson. At the present moment architectural education was run on a constructional side and an art side. That was hopelessly bad in theory, for construction and art ought never to be separated. There are no books which deal with the education of the architect in the right way. There are books on construction and a number of other books dealing with the external aspect of buildings. The teacher has to do his work with these two sources of supply. They are the textbooks both for the classes and for the architect's book-case. The architect has to deal both with the builder who gets his facts out of one set of books and with the client who gets his out of another. It is the duty of the architect to translate into the terms of the builder the requirements of the client—for doing that he is paid 5 per cent. The architect comes in as a gracious element who will supply the art. That faculty is a gift of God which some have and others have not, though it may be less true of architecture than of painting or sculpture. Their real problem lay in the encouragement and strengthening and recognition of that gift, so that it eventually gets its proper sphere. It was a problem which began with the Renaissance, previous to which there was a universal artistic appeal. In the future the whole tendency should be to bring our

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building construction and architectural history books together. That could be done. The Institute Board of Examiners ought to do it. It was to be hoped that the co-ordination of examiners would be carried further than it had been. Students must combine their studies into one set of books instead of into two.

Professor F. M. Simpson said he was very glad to hear of the interest being taken in scientific construction. A hundred years ago all construction was architectural. During the past thirty years the engineer has been getting more and more his mailed fist into the architect's practice. Among a certain class of client—as, for example, men who erect expensive office blocks in the City—the idea is growing up that the architect is a sort of decorator of the engineer's skeleton. The difficulty was as to how that idea could be combated. The remedy was that architectural students should receive the same comprehensive systematic training in this important scientific part of their work in a thoroughly equipped laboratory. Of course, it was not necessary to follow that training to the point that an engineer has to. A knowledge of steel structure and reinforced concrete is as necessary as ordinary practical work and carpentry used to be, say, thirty years ago. There are two main roads along which the teaching of design may proceed. It was building construction combined with tradition that produced the delightful work of the seventeenth and eighteenth centuries in this country. The policy for the last thirty years has been to study these old buildings so as to pick up the threads of a tradition broken by the Gothic Revival. Personally he hoped that study would never be stopped. Elemental design is followed chiefly in France, where tradition has never been lost, and in America, where there is no tradition. In England the two roads to design should go side by side in any scheme of training. He did not believe in forcing the student along any one road alone; after his preliminary training the student can choose which road he means to pursue. The elemental design can be followed very much farther. Existing schools deal with both the elemental and the vernacular up to a certain point. But a school was wanted in this country which would carry it further. Such a school exists in the Ecole des Beaux-Arts in Paris and at Columbia University. If some such scheme as the latter were adopted in London there might be as many studios as was found advisable.

Mr. Jemmett remarked that the whole subject divides itself into two parts, viz., first, what you want to teach, and secondly, how you are going to teach it. There is no agreement as to the first. Some wish to concentrate on structural perfection, whereas such a course would not fulfil the programme of many. Such a view was probably a reaction against the Gothic Revival. We, of course, want structural buildings, in fact we could not do without them. Twenty-five years ago the profession had got as far as that. But the theory made for perfect builders or craftsmen rather than for architects. It did not help towards the expression of ideas or emotions—as, for example, in a monument. Also the theory overlooks the skill which an architect requires. To his (the speaker's) mind teaching should be dependent on a theory of architecture. All the knowledge acquired is for that end and nothing else.

Mr. H. Kempton Dyson considered that if the ideals of Professor Lethaby and his school of architectural thought were followed in architectural education we should no longer feel that architecture was not occupying its proper place in modern civilisation. Professor Lethaby had long urged architects to study the art and science of building, and to be sure of the fitness before expressing themselves in the mannerisms of the past. The cry is that the engineer and the surveyor are usurping the place of the architect. Two favourite apophthegms of the engineer are to quote the late Prince Consort of Queen Victoria, who is reported to have said: "If I wish to talk about a thing I send for an architect; if I wish to get it done I send for an engineer," and the American who said that "An engineer is a man who can do for one dollar what any fool can do for five." These remarks express two common ideas among the ignorant public, namely, that an engineer is superior to an architect because he does what is wanted and he does it cheaper. Now that ought not to be. Building work requires to be organised and controlled by an architect if it is to be completely efficient. The misunderstanding of the qualifications of the architectural profession by our Government Departments has resulted in the loss of millions of pounds sterling, and the prolongation of the war. The amateur and the quack have rushed in, and contractors have been given practically carte blanche in building operations. Architects have been pushed on one side to make way for a crop of self-styled factory specialist designers who are in many cases incompetent. Some firms who seek to furnish constructional schemes to architects advertise to provide factory owners with complete designs without the intervention of an architect, and employ architectural draughtsmen with that object. The architectural profession might, with advantage, protect itself as the medical profession has done against the quack. It should ostracise those trade firms of so-called constructional specialists in steel and reinforced concrete, and the contractors who deal direct with clients without the intervention of an architect. Selection on price alone results in inefficiency. Architects should only co-operate with other professional men, such as engineers, and not become associated with contractors and other commercial firms, as they do when they accept schemes from them. The education of the architect in the past has been lacking in that it has not made of him a scientific man. The student need be none the worse an artist because he has a knowledge of the many branches of science required by an engineer to achieve success—namely, mathematics, chemistry, physics, mechanics, business economics, and ethics. Scientific training will make him precise, systematic, able to analyse and synthesise. The ideal to strive for is that architecture should be so expert a profession that a layman would no more dare to interfere with the work of the architect than with the work of the engineer. It should be impossible to get an efficient building so economically from anyone as from an architect. Greater attention should be given to the study of details of professional practice. Why does this Institute so seldom have papers read on experiences in everyday professional practice? Building construction has not been taught properly. The teacher should begin with a course in science—mathematics, chemistry, physics, mechanics, properties and manufacture of materials—and then show how the various details have arisen by the application of the fundamental principles in the endeavour to fulfil the function. Why not have art studied both as a science and an art? That is to say, why not study it in theory and in practice? The theory has been too much neglected, with the result that architects too often lack originality. With all who are engaged in the creative professions, such as architecture and engineering, imagination and inventiveness should be trained and encouraged.

Mr. Weir considered that one of the faults of the system lay in the fact that all students were going in for the same qualifying examinations of the R.I.B.A. This would become still more evident if Registration came into force. There was a wonderful architectural school existing on the right lines in London, viz., that under Professor Beresford Pite for the London County Council.

Professor Lethaby thought there was more agreement than was generally supposed between his views on the education of the architect and those of other people. His contention was that they should build up a real architectural science. Personally he was all for emotion in building; but he believed it would be best attained by not talking about it.

Mr. Atkinson having proposed, and Mr. Percy Tubbs seconded, that the conference should be adjourned, this course was adopted unanimously.

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GLASGOW ARCHITECTURE.*

By JOHN KEPPIE, F.R.I.B.A.

(Concluded from last week.)

I PROPOSE now to deal in a desultory way, sometimes with separate buildings and sometimes with individual architects. I have already mentioned St. Andrew's Square. Besides the buildings surrounding it, which were the city houses of the better classes at the middle of the eighteenth century, the centre is occupied by one of the city churches. The houses are in the Classical tradition and give an indication of what that Square must have been like about the year 1770. St. Andrew's Church was designed by Mungo Naismith, who did much in his day to beautify the city. With the exception of the spire it is a copy of St. Martin-in-the-Fields, London. Begun in the year 1739, its site formed part of the Green, stretching behind Saltmarket to the east. It was completed in 1756, and the Square round it in 1787. In this church there is a point of construction which is most unusual—the vertical jointing of the flat lintel on the pillars. Tradition has it that the builders refused to lay this. I do not know for a fact, but I have no doubt, however, that while those joints show as vertical on the surface, the principle of the flat arch is applied behind, and that these stones, although they appear as lintels, are in reality voussoirs or arch stones.

Anderston Free Church, designed by Messrs. Clark & Bell, was erected in 1849. They were also the architects of the old Municipal Buildings. At the transference of the Corporation to George Square, these were utilised as Sheriff Court Buildings, &c., and were brought up to date by the late George Bell. They are an excellent example of municipal Classical architecture of a dignified kind. The carvings on the south façade are excellent flat reliefs and have the great advantage of being on a level with the eye, an advantage too often lost sight of in such decorations.

The Episcopal Chapel at Cranstonhill, by Mr. Henderson, of Edinburgh, was erected in the same year.

The Episcopal Church near the Green was erected in 1750, about 100 years before. The builder, one Andrew Hunter, was cited to appear before the Session of Shuttle Free Secession Congregation to answer for the great sin and scandal of daring to be employed on such an undertaking. Religious intolerance seems to have been rampant in Glasgow at the end of the eighteenth century. In 1780 the shop of a potter in King Street was destroyed by a furious mob on account of his being a Roman Catholic, but we find that the Clyde Street Roman Catholic Church was opened in 1770 and cost £16,000.

Free St. Matthew's Church in Bath Street was built in the year 1850. It is a decorated Gothic church, with a spire about 200 feet high. It is from the designs of Messrs. Black & Salmond, and even now it is one of the best church spires in the city. The detail is somewhat heavy, especially in the crockets of the pinnacles, but altogether it has a most pleasing effect and shows a keen sense of chaste proportion. Mr. Salmond, who was a Bailie of this city, is responsible for several other churches, the one at the Gusset at Eglinton Toll and Anderston Parish Church. Both of these are in a kind of Italian Gothic; but there is no doubt that St. Matthew's is his best effort in church architecture, and that was done in partnership with Mr. Black.

The year 1850 was rich for architecture in Glasgow. In that year Mr. Porter's church at the corner of Holland Place and Bath Street was erected, the site forming a part of the old orchard of Willowbank. This was designed by Mr. Emmett, an English architect, known for his ecclesiastical buildings. It was a departure in plan from the galleried church prevalent at the time. The Englishman undoubtedly showed us the way to a more reasonable practice in ecclesiastical architecture. This church is an excellent example of Perpendicular architecture of a scholastic type, and is marked throughout with a reticence and a taste altogether admirable. The spire rises to a height of about 180 feet and is carefully and successfully proportioned.

I propose now to give a short notice of some of the architects who have left their mark on the city.

The brothers Robert and James Adam came of an architectural family. Their father, William Adam, was an architect in Edinburgh, and had a large practice between the years 1730 and 1760. His four sons were brought up as architects, but Robert and James, who practised together, were the best known. Robert, the most famous of the family, was born in 1728 and educated at Edinburgh University. He travelled extensively in 1754, visited Nismes in that year, was at Rome in 1756, and at Venice in the summer of 1757. Along with Clerisseau he measured the ruins of Diocletian's palace at Spolato. He returned to England in 1758, and at once began practice. One of his earliest designs was the gateway to the Admiralty. Among his better known buildings are the Record Office in Edinburgh, erected in 1773, and the Royal Infirmary, Glasgow, erected about the same date. Edinburgh University buildings (1778) were partly from Adam's designs. Charlotte Square is also by the brothers Adam, and they are supposed to have designed St. George's Church, at the west end of George Street, one of the finest domed churches in the country.

Their name is very much associated with furniture, and with a stucco material which they used largely both inside and out. The stucco, although interesting and beautifully modelled, did not stand the climate outside, and is often very shabby-looking. This allowed them to get a rich effect economically, but led to a style which is always recognisable. The brothers were financially interested in the use of this material, and they seem to have been among the earliest architects to enter into speculative buildings, several Squares in London and elsewhere having been erected in this way.

The Old Barony Church for the city was built in 1798 by a nephew of Robert Adam. It was of a kind of bastard architecture, indicative of ecclesiastical buildings in Scotland about the close of the eighteenth century, and had almost the appearance of a cement building, the walls being rough-cast, thus losing the scale which joints always give to a picturesque building. It was demolished in 1889 to open up the space at Infirmary Square, and a new Gothic church was erected on the ground opposite in High Street by Sir John Burnet.

Either the Adams or their immediate followers were the architects in Glasgow of the Royal Infirmary, recently demolished; the old Assembly Rooms, Ingram Street (afterwards the Athenæum and the site now occupied by the Post Office); the Trades House, Glassford Street; the buildings in High Street, opposite the site of the old College; and the old mansion-house in Kelvingrove, destroyed in 1901.

Mr. John Burnet, born in Denny, Stirlingshire, in 1814, was associated with Glasgow during his career, and enjoyed a large practice. He had an excellent connection and contributed largely to raise the standard of work in the West. Besides his work in the city, he designed a great many country mansions. Among his works may be mentioned the Merchants' House, George Square; the Stock Exchange, Buchanan Street (both since added to by his son, Sir John Burnet); the Clydesdale Bank, St. Vincent Place; Madeira Court Buildings, Argyll Street; the Union Bank (front portion to Ingram Street); the Bank of Scotland at the corner of Carlton Place, a beautiful example of his early work. Among his churches may be mentioned Woodlands Road Church, Elgin Place Congregational Church, and a small church at the Cambridge Street end of Rose Street. There is a very beautiful school opposite the gaol in Duke Street, Alexander Public School, of which he was the architect.

Alexander Thomson was born at Balfron about the year 1820, and there is probably no architect in Scotland who has created a more distinctive or personal style. He had

* A lecture delivered before the Glasgow Technical College Architectural Craftsmen's Society.

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not many opportunities of displaying this in the grand manner which a colossal building makes possible, although he had all the qualifications for doing so. He had, however, a fair number of opportunities on lesser buildings, and these he worked out in such a personal way that there is never any difficulty in recognising his work. His practice has influenced Glasgow architecture greatly, but none of his followers has preserved the thoroughness or the taste which he displayed.

At the time when he commenced his career Stuart and Revett published their great work on Athens. This no doubt, formed the basis of Thomson's designs. While influenced by Greek architecture, he was never governed by it. He was true to himself, and is probably as personal as any architect of recent times.

The most important work which he carried out, although the commission was originally given to his brother, George Thomson, is the St. Vincent Street U.P. Church. This is, externally, quite a masterpiece. The church type of plan had not developed when this was built, but there is nothing more outstanding in the country than this exterior. It has all the characteristics of great architecture, a perfect suitability to the site, which is a most picturesque one, distinguished refinement of taste in design and detail, a sufficient fitness for its purpose and a strong personal equation in its design. He was held in great esteem by his fellow-practitioners, and after his death a scholarship was established to carry on the traditions of which he was such a distinguished exponent. His other churches are Queen's Park and Caledonia Road Churches, both equally interesting in detail and conception, but not so distinguished either in position or mass.

Of business premises, what was known as the Egyptian Halls in Union Street is his best, and this has all the characteristics of great architecture. Had this building, with its solemn horizontal lines, been carried from Gordon Street to Argyll Street, I have no doubt that artists would have come from the ends of the earth to see it. In the ordinary domestic work of the city he holds an equally distinguished place, and one has only to instance Great Western Terrace, the tenement in Eglinton Street, and the Terrace at Strathbungo Station to demonstrate that whatever his hand found to do he did with all his might.

Of Mr. James Sellars, who was Glasgow born, it must be said that all his work was done in Glasgow. He was trained in the office of H. & D. Barclay and in the Glasgow School of Art. He died at the age of forty three, having accomplished in that short career far more than most men in a long lifetime. He was a most indefatigable worker and deputed little to others. He was an accomplished draughtsman, and it was his invariable habit to work into the small hours of the morning. Until late in his career he hardly travelled at all, and when we consider the variety and excellence of his work, we cannot but wonder at the way in which he assimilated the details and characteristics of the various styles which from time to time he practised. His method of work, however, gave to each of his designs an individual touch, which is often not so apparent in the works of others who, while equally distinguished as architects, did not possess the same qualities as draughtsmen. He will probably be remembered as a creator of detail (the contours of his mouldings have had a marked effect on the architecture of Glasgow) rather than as a very skilful planner. Most of his work was done in partnership with the late Campbell Douglas, but he was not much influenced by others. One of the departments of Art in which he excelled was cast-iron, apparently an unpromising material, and in his various buildings are seen excellent examples of his skill, such as the lamps in front of the St. Andrew's Halls and the New Club, and the railing in front of Wylie & Lochhead's building in Kent Road. His better known buildings are St. Andrew's Halls, quite a masterpiece in its way of Classic design. This was planned by Mr. Douglas in connection with Mr. Cunningham, of Liverpool, and was based on the plan of the Philharmonic Hall in Liverpool, which was considered a masterpiece of acoustics. St. Andrew's Halls are equally successful in that respect. To some extent this building is influenced by the work of Greek Thomson, from whom, I believe he got considerable advice, but it is different in quality from Thomson's work. Probably Mr. Sellars' greatest work is the New Club in West George Street, which, in these parts, strikes a new note, and is so beautifully detailed as to be a masterpiece of architecture both outside and inside. The care lavished on this building could not have been exceeded, and in it all is the personal equation of its designer. Among other buildings of a semi-Classical nature designed by Mr. Douglas are the *Glasgow Herald* Office (Buchanan Street façade); the City of Glasgow Bank, Glassford Street, never finished, and now part of Messrs. Mann Byars' warehouse; Wylie & Lochhead's warehouse, Buchanan Street (the first building in terra-cotta erected in Scotland); the Town Hall, Ayr; and a small building in Trongate, erected for James Crichton, jeweller. In Gothic work he also designed Hillhead Church, Belhaven Church, and St. Enoch's U.F. Church, opposite the Fine Art Galleries. His practice in Gothic was not so individual as in Classic or neo-Classic, but is characterised by an equal refinement of taste.

Another Glasgow name which I cannot overlook is John Honeyman. Early in his career he spent several years in visiting and measuring many of the English Cathedrals, and while quite a young man designed Lansdowne U.F. Church and St. Silas's Episcopal Church, besides a number of others in Glasgow and throughout Scotland. The Congregational Church, Helensburgh, and Aberfoyle Church, also St. Michael's, Edinburgh, are among those in Gothic style. He also erected Francis & James Smith's furniture warehouse at the corner of Gordon Street and Union Street, and Messrs. Burns' building in Jamaica Street.

I can only refer in a sentence or two to some of the architects who have done more than their part in building up the interest of the architecture of Glasgow. One of these was Stark. He built the recently erected Court Houses at the Green; the Old Hunterian Museum; St. George's Church, and the City Poor-house. Another was Nicholson, who designed Carlton Place. Other architects of note were Hamilton, who designed the Royal Exchange, The Western Club, St. Paul's Church (1836), the British Linen Bank, and Hamilton Palace; Gibson, who designed the National Bank of Scotland (since removed to Crossmyloof); Rickman, who designed Ramshorn Church; and Cousland, who designed Renfield Free Church and St. George's Free, one of the few domed churches in the city.

NOTTINGHAM AND DERBY ARCHITECTURAL SOCIETY.

To afford members an opportunity of social intercourse the Society's Room was opened on Tuesday afternoon, February 6. After tea a general meeting was held, at which the President, Mr. H. Gill, M.S.A., took the chair. Mr. A. E. Lambert was elected a member.

Mr. Bromley, Past President, announced that Mrs. Arthur Marshall had sent him a selection of her late husband's pencil sketches and sketch-books to present to the Society, The artistic technique of the late Mr. Arthur Marshall's sketches is so well known that the gifts were very greatly appreciated.

The President then addressed the meeting upon "Uniformity of Practice." He said: The Council have had under consideration the important matter of "Uniformity of Practice," but so far no definite conclusion has been arrived at. They were asked to compile a set of model conditions, but find it impossible in the present state of things to frame any set of conditions which will apply in all circumstances without imposing intolerable burdens on the profession. Whenever trouble arises, we are told it should have been put in the preamble of the bill of quantities. The preamble is already too voluminous, and a "slim" contractor will wriggle out of it,

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even if it were made as long again. We must find a way that will make our labours cheaper and not dearer, or we shall have more cases of owners going direct to the builder for help.

After much thought, I feel satisfied in my own mind that we must find a better way. We must create such "*unanimity* of practice" that no room for two opinions on vital points are possible, and thus make an unwritten code more powerful and binding than any number of clauses, and I am decidedly of opinion that we should leave the purely legal clauses out of the specification and embody them in the form of contract.

But I am equally satisfied that to do this we must cultivate more friendly relations, not only with the contractor, but also with the operative. I know some architects will think this is derogatory to the profession, but I do not think it is so derogatory as some of the clauses now in use. We must cultivate friendly relations, but in such a way as to avoid any suspicion of that ugly word "collusion," for I do not hesitate to say that some architects have done untold harm to the profession by collusion with the builder.

We must also show the public that, while interested in our work as practical men familiar with the way the work should be done, we are yet disinterested in any other sense than the production of good, honest, artistic work. There must also be more cohesion among the members of the profession. See how this lack of cohesion among ourselves has acted detrimentally during this war crisis. I cannot but feel that the letter of the President of the Royal Institute of British Architects, which is known to most of us, is a sad confession of failure.

The Surveyors' Institute has been appealed to again and again for special men, but the architectural societies have received but a few crumbs out of charity. Just now there is a possibility of an interview with Mr. Neville Chamberlain, but I fear it is too late.

For the future let us keep our province warm and friendly, cultivate helpful relations with kindred societies, and work for the unification of the profession. Then there should be more propaganda work outside our own doors. Our Architectural Society will be as good as dead unless we can influence public opinion. Take, for instance, the question of streets. Can anything be more heartbreaking to a sensitive nature than the "lay-out" of our modern cities and suburbs?

"Oh!" you say; "you must put pressure on the officials to remedy that." But we cannot put pressure on officials unless public opinion is on our side, and, moreover, so long as the owners who develop estates think that a paved road 50 ft. wide gives dignity. Let us speak with clarion notes that it is not the width between the houses that is unnecessary, but the width of bald and expensive paving. Seeing that most lateral streets lead to nowhere in particular, a paved roadway sufficiently wide to let the baker pass the butcher in his cart is all that is required, while the money saved would encourage the building owner to adopt a wider frontage, and so give the designer a chance.

A useful discussion followed, in which most of those present took part.

IMMEDIATELY at the close of the war it has been decided to erect at an estimated cost of £10,000 to £12,000 a new fire station at Accrington.

SINCE the French War Office first sent to London a collection of their official photographs showing the actualities of war, the Photographic Service of the French Army has prepared an entirely new series of many thousands of pictures. These will be on exhibition in the Galleries of the Fine Art Society, 148 New Bond Street, from Saturday next. The collection consists of official photographs and autochromes, and depict scenes and incidents of the battlefields of the Western Front, and show happenings up to the present time. In addition to 350 enlargements prepared in Paris, there will be transparencies and a great quantity of pictures in albums. There is a remarkable record of the operations around the forts of Verdun.

LONDON COUNTY COUNCIL.

THE Buildings Sub-Committee of the Education Committee have reported as follows:—

On July 28, 1915, we reported that, with a view to making economies in the planning and construction of Elementary Schools, revised preliminary plans had been prepared for the erection of an Elementary School in the Stowage (Greenwich), and that the scheme, whilst complying with the requirements of the Board of Education's building regulations (1914), could be carried out at considerably less cost than the scheme which had already been approved by the Committee and the Board. The Committee decided to submit the revised preliminary plans to the Board for approval. The Board (21—9—15) replied as follows:—

"With reference to Mr. Allen's letter of 5th ultimo (E. 13), I am directed to state that the Board notice that the revised plans have been so contrived that none of the class-rooms open off the hall directly, but they do not get the advantage of the cross ventilation which has been provided in the more recent schools erected by the London County Council. The Board, while regretting the loss of this feature, to which they attach importance have no doubt that the Council on this occasion consider that the advantage must be foregone for reasons of economy. It is suggested that, in order to compensate as far as possible for the loss of the cross ventilation, the windows should be so constructed as to give the maximum of opening. The plans are returned herewith."

The architect has since carefully reviewed the details of the construction, the statical condition of the buildings to be provided, and the specification of the materials to be adopted, with a view to arriving at a form of construction which it would be reasonably easy to maintain, without serious additional maintenance charges, for a period of, say, forty years. We decided to refer the architect's report to a special section to consider, and we have now received their report. The section have considered in detail the various alternative methods of construction submitted by the architect, and we have approved the economies suggested by the section. These are set out in recommendation (*a*) (i.) to (xiii.) below.

If the whole of these recommendations are approved, the cost per head of the main building will be £11 4*s*. 9*d*., as compared with £15 15*s*., showing a net reduction of £4 10*s*. 3*d*. per head, equivalent to a reduction of £4,045 on a standard school of 896 places.

We propose that the amended plans and specification shall be adopted as the authorised standard for future Elementary School buildings, and we submit a recommendation accordingly. It will be necessary to inform the Finance Committee under standing order No. 243. We recommend:—

(*a*) That the Education Committee do approve the economies set out hereunder in regard to the plans and specification of the proposed Stowage L.C.C. School (Greenwich); and that the Finance Committee and the Council be informed accordingly:—

(i.) That the condensed planning scheme presented by the architect for the proposed Stowage School (Greenwich) be regarded as generally satisfactory.

(ii.) That the "drop system" of heating apparatus be adopted in lieu of the "two-pipe system."

(iii.) That thinner walls, &c., be provided involving a saving on the cost of brickwork.

(iv.) That Fletton brickwork faced externally with stock and special bricks be adopted in lieu of stock brickwork faced externally with red bricks.

(v.) That ornamental brick cornices to elevations be omitted.

(vi.) That the concrete in floors of classrooms, halls, and corridors be reduced in thickness and topped with coke breeze concrete, and that ⅞in. plain flooring be nailed thereto in lieu of the proposed provision of floors with fillets fixed in concrete and 1½in. grooved and tongued flooring to classrooms and wood-block flooring to halls and corridors.

(vii.) That stone dressings to entrances be not provided.

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(viii.) That steel and concrete landings be provided to staircases in lieu of York stone landings.

(ix.) That Delabole slating be provided in lieu of Westmoreland slating, and that the scantling of the carcassing be reduced.

(x) That lines and pullies be provided to windows in lieu of rod window gearing.

(xi.) That glazed dadoes be provided in the classrooms, halls, staircases, and corridors, the brickwork above to be fair faced and distempered.

(xii.) That saving be effected on various small items and also in respect of quantity surveyor's fees due to the reduced cost of building.

(xiii.) That the provisional sum included in the specification for testing floors be omitted.

(*b*) That it be an instruction to the architect that the amended plans and specification of the proposed Stowage L.C.C. School (Greenwich) do form the authorised standard for future Elementary School buildings; and that such steps as are possible be taken with a view to a school of this type being constructed at the earliest possible moment; and that the Council be recommended accordingly.

ART IN LONDON.

ROYAL SOCIETY OF PAINTER-ETCHERS AND ENGRAVERS.

There is a tendency, somewhat inexplicable, when the art of etching and engraving is concerned, to pay more heed in criticism to the value of the technique than to the merits of the composition. But there is, in fact, no greater reason for this limited consideration than in estimating the quality of paintings. Colour, light and shade, values, tonality, composition and subject, as well as technique in its more limited sense— all such of these as appertain to any picture should be regarded as equally deserving of consideration.

However surveyed, this thirty-fifth exhibition of the society is one which shows a very large amount of really good work, and the best include the following: Mr. Axel Haig's "Street in Lisieux," Mr. W. Monk's "Cloth Fair, Smithfield," Mr. Tuckingham's "Study of an Infant," Mr. Stanley Anderson's "William Walker," Mr. C. Murray's "Malines Cathedral," Mr. Percy Robertson's "Hyde Park Corner" and "Newcastle-on-Tyne," the late F. S. Walker's "Windsor Castle" and "Westminster Abbey," and Mr. Albany Howarth's "Rue St. Romain, Rouen." Mr. H. G. Warlow's "King's College Porch, Cambridge," is also very meritorious, and a couple of dainty compositions by the late Miss Amelia Bowerley deserve special recognition. Mr. Fred Richards has a fancy architectural composition called "Modern Education," where the medley suggests the artist's conception of the value of latter-day education. Mr. Herbert Dicksee's "Profile of Tiger" is thoroughly characteristic of his work, and his "Reapers" is a most artistic contribution to a thoroughly interesting exhibition.

AT THE LEICESTER GALLERIES.

At the moment of writing Messrs. Ernest Brown & Phillips have three exhibitions, of which we have recently noticed the work of Mr. Epstein. The two others consist of costume designs for the theatre by Purcell Jones and an exhibition of the work of the late M. Harpignies. Regarding Mr. Jones' work a few words will suffice. In the same way as mannequins in costumiers' establishments are selected by reason of their personal attractions, so would it be well that Mr. Jones should exhibit his designs similarly accompanied. It may be true that good wine needs no bush, yet, despite that, the very hideous and inartistically drawn figures detract from any merits that the costumes themselves may otherwise possess; and we think that the less said about these merits the better.

As regards that veteran artist, the late M. Harpignies, the qualities which appeal to us most are the luminosity, the atmosphere, and the colour, but we notice insufficient attention to modulation. The works which claim prior notice are No. 3, "Landscape with Stream, Herisson," No. 17, "Le Parc de St. Fargian," No. 28, "Dans le ravin du torrent, Cannet," No. 48, "Evening," and No. 57, "Effet de soir, bords de rivière." The charcoal drawings, Nos. 30, 32, 41, and 43, also proved strongly attractive. In some of the work there is more than a tendency to woolliness, flatness, and woodenness; not, as it may be supposed, all in the same pieces, but merely as the result of a general impression in viewing what is undoubtedly an interesting collection.

MR. PHELAN GIBB REDIVIVUS.

Mr. Gibb commences his sermon with a text "Artists exist to create—not to abstract." In his sermon displayed on the walls of the Alpine Club Gallery he has certainly created, *mais le jeu vaut-il la chandelle?* With great good sense he entitles all his "pictures" by the size of the canvas upon which they are displayed. No. 4, "Thirty-six by fifty-five inches," portrays two ragtime young women (without the rags, however), to which we would be inclined to suggest the title "The fairest of her daughters, Eve" (though this would not even then be saying much for Eve). "Twenty-two by thirty-two inches," in other words No. 5, shows a charming girl (charming à la Mr. Gibb, bien entendu) playing tisty-tosty with her little baby. But, seriously, is the whole thing an elaborate jest on the part of Mr. Gibb? If so, it is a very poor one in two senses of the adjective. His pottery decoration is, however, not infrequently illumined by a really effective combination of colour. A la bonne heure!

Correspondence

[The Editor will not be responsible for the opinions expressed by Correspondents.]

The Design and Construction of Industrial Premises.

Sir,—The remarkably able articles which you have been publishing in your February issues under the above heading must have attracted considerable attention, and I, being a manufacturer interested in building materials, have read them with great interest. The remarks of the author on the vagaries of the various by laws will be quite understandable by any person who has had experience in planning or erecting structures in various parts of England, and the following sentence has led me to dictate this letter:—

"If it were not necessary to have walls at least nine inches thick to keep the weather out (more or less), greater developments would take place regarding walls, particularly those of one-storey buildings."

Some of your readers will be surprised to learn that the British Government have partially solved the difficulty of building economically by the method with which they have constructed the walls of many houses for the munitioners. Hundreds of houses have been erected with 3-in. coke breeze exterior walls, the walls and roof being supported by coke breeze piers. The exterior has been rendered with two coats of Pudloed cement, and in no case have any complaints been received as to instability or dampness. It would be just as consistent to complain of the inability of a sheet of glass $\frac{1}{8}$ in. thick to keep out driving rains and other inclement weather as to argue that a $\frac{3}{4}$-in. waterproofed cement could not accomplish the same purpose. The tendency is to build commodious and sun-swept houses which are sufficiently stable to be weatherproof, and the man who can invent anything towards this end should certainly receive due consideration by the committee which will undoubtedly be appointed (at the end of the war) to investigate the quickest and best means of housing British workers.

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MR. ALEXANDER THOMSON, Architect.

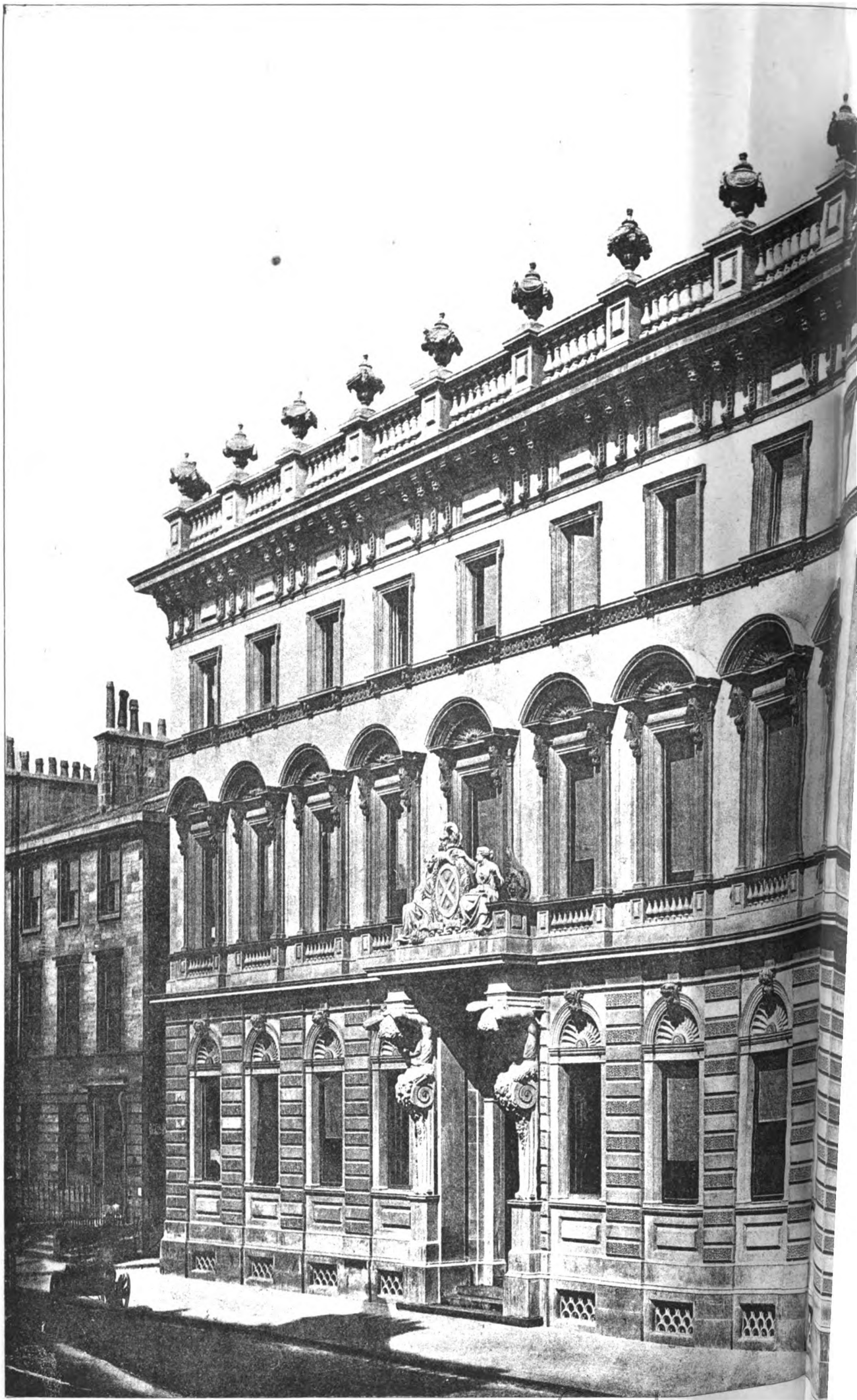
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QUEEN'S PARK U. P.
Mr. ALEXANDER T



CHURCH, GLASGOW.
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When the by-laws are altered to suit modern methods of building, the smaller industrial buildings will likewise receive similar economical treatment, to the benefit of the whole community.—Yours, &c.,

J. H. KERNER-GREENWOOD.

King's Lynn.

Should Rents be Doubled?

SIR,—There is a good deal more to be said in favour of Mr. Hoffman Wood's suggestion than the landlord's income, as if rents were doubled the capitalist would come in, and it is a well-known axiom that "capital can always take care of itself."

My firm have built many houses in the past, but almost without exception they have been sold to small investors, and only mortgaged to the capitalist.

Then there is the political reason, as no one can expect a man who has shown himself such a statesman as Mr. Lloyd George should allow his favourite scheme to fail because builders refused to build. He will find the machinery to compel corporations to build small houses and leave villadom to look to itself. But if rents were doubled the money would come out of the pockets of the masses, and the building trade will be busy again with or without "Form 4," and capitalists will provide the means—not the Government. It should be an axiom that property should pay well enough to allow for a sinking-fund which should allow the building to be taken down every fifty years to keep up to date, and the building by-laws altered accordingly.—Yours, &c.,

A RETIRED BRADFORD BUILDER.

[We believe Mr. Lloyd George is a sufficiently great man to recognise that he made a mistake in the promulgation of his "favourite scheme."—ED.]

Registration of Business Names Act, 1917.

SIR,—May I seek the hospitality of your columns for the purpose of calling attention to the obligation imposed by the Registration of Business Names Act on shopkeepers and other tradesmen, and, in fact, on everyone carrying on a business or profession in this country (except limited liability companies and other corporations)?

This Act provides that on and after March 21 next all persons carrying on business in this country must trade under their own true names or else must be registered. The object of the Act is to enable everyone to know with whom they are trading, and if persons are trading under their own names with no additions except their Christian name or names (or the initials thereof), it is not necessary to register, but if anything is added to the true name, or if a business is carried on under a fancy title, registration must be effected between February 21 and March 21, on pain of heavy penalties.

A simple instance will serve to show what is required. If, for instance, John Smith owns a business, he may trade as "John Smith" or "J. Smith" and need not register, but if he trades as "Smith & Co." or adopts a fancy title, such as "The General Drapery Stores," registration must be effected. And in addition to registration, all business letters, trade catalogues, trade circulars and showcards which are issued or sent to any person in any part of his Majesty's Dominions must show in legible characters the true name or names of the proprietors of the business, and the present nationality or the nationality of origin, if other than British.

The individuals and business firms who are not trading under their own name or names (with no additions thereto) are liable, if not registered by March 21 next, to a penalty up to £5 per day for every day of the offence, or if such individual or firm enters into a contract while not registered, such contract cannot be enforced by the law if the other party should want to get out of it. It is also open to any private individual to set the law in motion against a defaulter, except in regard to section 18 (publication in trade catalogues, &c.), where the consent of the Board of Trade must be obtained. It is understood that the forms for registration will be obtainable on and after February 21 from the principal Post Offices, and the offices of the Registrar for England and Wales are at 39 Russell Square, W.C.—Yours, &c.,

JAMES MARTIN.

Chairman of the Parliamentary and Commercial Law Committee, London Chamber of Commerce.

Property Owners, Borrowers, and Lenders.

SIR,—Many lenders of money on the security of property are naturally dissatisfied with the rate of interest they at present receive in respect of mortgages effected before the war, and some borrowers have by mutual arrangement consented to pay a higher rate of interest, notwithstanding the provisions of the Increase of Rent and Mortgage Interest (War Restrictions) Act, which precludes the lender from charging any higher rate of interest than before war time, or calling in his mortgage, in cases of property rated at not more than £35 per annum, until six months after the war is over.

It is, however, anticipated that the value of money (probably for some years to come) will be much higher, and in consequence, when peace is declared, much higher rates of interest will be insisted upon; indeed, it is not at all unlikely that lenders will be calling mortgages to an extent which may make it impossible to replace them, and those frugal and provident people whose savings are represented by the equitable value of their property may suffer great loss, and in some cases possibly even ruin.

This is a matter requiring the earnest consideration of all property owners, and I think the time has arrived when they should be warned of the difficulties ahead, and that some expression of opinion from your readers might usefully be taken upon the following:—

"Whether, having regard to all the circumstances and the fact that no further relief from the imposition of increased rates of interest and calling in of mortgages is likely to be obtained unless the owners are prepared at the same time to consent to the continued restrictions against the raising of rent, it will be wise to approach the Government with a view to extending the operation of the provisions of the Increase of Rent and Mortgage Interest (War Restrictions) Act for, say, a period of two years after the war instead of six months, as provided by the Act."

It must be borne in mind that the question will involve conflicting interests—*i.e.*, the owner who has no mortgage upon his property, or the amount of whose mortgages are so small that they can be easily replaced, may very naturally desire to be relieved of the rent-raising restriction, and this would also apply to borrowers from building societies whose rules do not empower them to call in mortgages or raise the rates of interest charged. Whilst, on the other hand, the owner who is liable to be called upon to repay heavy mortgage amounts at three months' notice will certainly desire that the valuable protection the Act affords shall be extended for a longer period.

My Association earnestly hope that this question will not be made a matter of personal interest only, bearing in mind that any wholesale calling in of mortgages, causing a flooding of the property market through selling by order of mortgagees, would tend to depreciate the selling value of properties generally, but rather that it should be considered as a matter of war-time expediency, and as one involving the interests of all parties concerned.

I trust that the matter is of sufficient importance to bring it before your numerous readers, so many of whom are either lenders or borrowers.—Yours, &c.,

EDWIN EVANS, President.

Property Owners' Protection Association, Ltd.

17 South Street, Finsbury, E.C.

Letter Postage to France.

SIR,—The British Chamber of Commerce, Paris, has often called the attention of its many members in Great Britain to the fact that letters posted to France should bear at least a twopenny-halfpenny stamp, and not the penny stamp too often affixed to the letters. But the trouble still goes on, and of the many thousands of letters

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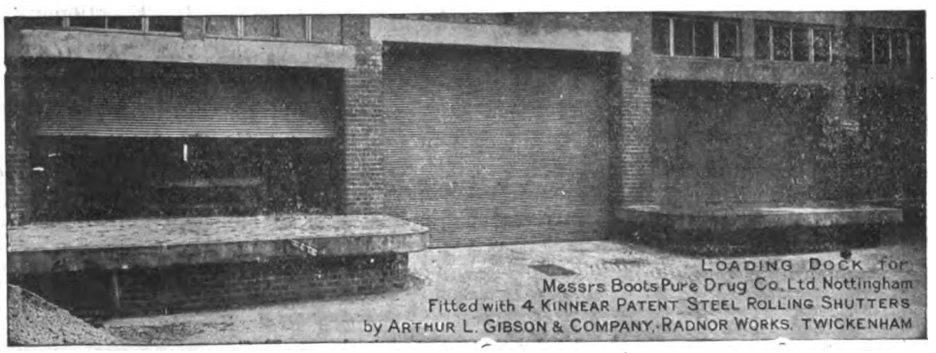
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from England delivered in France each day, a very large proportion bears the overcharge of threepence or more, which the addressee has to pay or refuse the letters. In my own comparatively small correspondence the charge on understamped letters from England costs me from £15 to £20 each year. The trouble of the expense is not so great as that of the petty annoyance caused and of the bad impression made. As a rule in Paris the postman delivers the letters for the suites of offices to the hall porter, with whom a separate petty cash account is made necessary, and his instructions have to be either to refuse all understamped letters, to use his discretion, or to accept all letters and to pay the overcharge of, say, threepence on an ordinary letter, to several pence or even francs on bulky sealed envelopes containing papers, catalogues, statements, &c.

When, after receiving from some prospective client or new supplier inquiries or offers of service in English, or quotations made out in all kinds of measures and dimensions, priced in shillings and fractions of pence, the Paris businessman glancing at the envelope finds that he has had to pay a franc or more on the understamped communication uselessly, he must be inclined in a polite way to bless his correspondent, and to feel sorry for him and for himself. Surely it should be easy for the Postal Authorities to make those who wish to correspond with France and abroad take a little more thought of the details of foreign postage. I am afraid that the thought of small details is not one of our strong points, we hurry too much to think, but we should take into consideration that if we intend doing good in the coming business war we shall have to take more account of details, and the letter clerk, who stamps the letters without taking any thought of their destination, the boy who later on may rise to be manager or higher, must start to consider details as important things.—Yours, &c.,

ARTHUR VYE-PARMINTER,
Architect, Paris.

Income Tax Claims.

SIR,—Permit me to remind your readers that any claim in respect of the financial year 1913-14 must be lodged with the Inland Revenue *before* April 6 next.

Claims can be made in respect of the following:—

Exemption.—Where total income does not exceed £160.

Abatement.—Where total income does not exceed £700.

Children's Allowance.—Where total income does not exceed £500.

Also for bank interest, life insurance premiums, maintenance of property, income of charitable institutions, &c.

Any claim for the year 1915-16 in respect of a loss in business or a diminution of profits owing to the war should be preferred without delay.—Yours, &c.,

For THE INCOME TAX RECLAMATION ASSOCIATION, LTD.
WILFRED T. FRY, Director.

BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders the address is as a rule local.)

ENGLAND.

BEDFORDSHIRE.

Luton (near).—Cottages, stables, stores, &c., Marsh Road, for Mr. F. Ray.

BERKSHIRE.

Newbury.—District Hospital: extension.

Sunningdale.—Garage, Church Road, for Mr. A. Holloway.

DURHAM.

Darlington.—Darlington Forge: offices extension.
Girls' Hostel, Russell Street, for the Lily Laundry Company.

Durham.—Miners' Hall, North Road: additions for Mr. J. Dobson (of Byker).

HERTFORDSHIRE.

Wilstone.—House for Mr. Jeffery.

KENT.

Dover.—Stores for Messrs. Chitty. Mr. R. W. Paramour, architect.

LANCASHIRE.

St. Helens.—Parish Church: proposed chapel, &c.

Walkden.—The Bridgewater Mill: extensions for Messrs. J. Booth & Co.

Worsley.—Primrose Mill: extensions for Mr. W. A. Rothwell.
Mill: extensions for the Walkden Spinning and Manufacturing Company.

LINCOLNSHIRE.

Skendleby.—Cottage: additions for Mr. Belton.

MIDDLESEX.

Northolt Junction.—House, Bourne Avenue, for Mr. A. R. Chard.

SURREY.

Addlestone.—Research Institute: Serum Station. Mr. E. C. Hughes, contractor, Albion Works, Wokingham.

WARWICKSHIRE.

Coventry.—Over two hundred houses, London Road, for the Minister of Munitions.

Napton.—House for Mr. J. Smith, Junr.

YORKSHIRE.

Brighouse.—Works: extensions for Messrs. J. Blakeborough & Sons.

Broomhill.—Twenty cottages, Everill Gate Lane, for the Gorton Collieries Company, Ltd.

Hull.—Business premises, Dalton Street, and new mills, Lime Street, for the British Oil and Cake Mills, Ltd.
Warehouse, Finkle Street, for Mr. V. Dumoulin.

Newmill.—Lee Mill: additions.

Rawmarsh.—Houses, for the Parkgate Iron and Steel Company, Ltd.

WALES.

Llanelly.—Stebonheath School: alterations for military hospital.

Swansea.—Swansea Hospital: additions.
No. 291 Trewyddfa Road: additions for Mr. T. Bowen.
Offices, Cambrian Place: additions for Messrs. Glasbrook, Son & Co.
Two workshops for the Water and Sewers Committee.

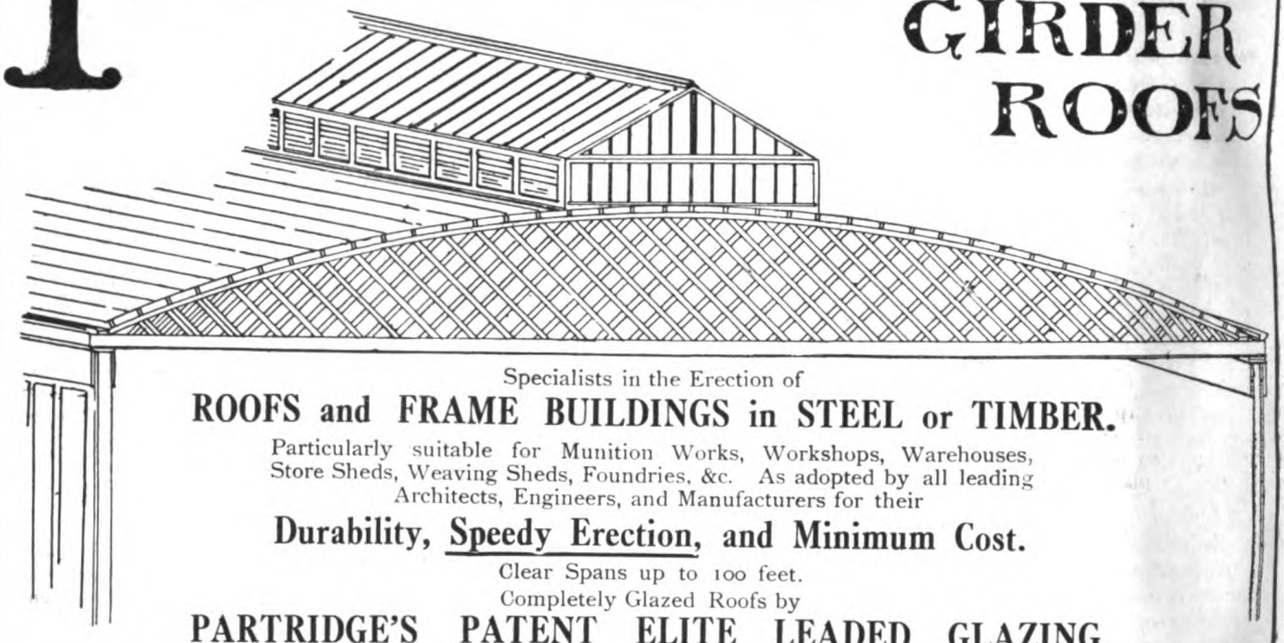
SCOTLAND.

Aberdeen.—Business premises, Russell Road: additions and alterations. Mr. G. B. Mitchell, architect, 148 Union Street.
Drying-house, Russell Road. Mr. W. E. Gauld, F.R.I.B.A., architect, 11A Dee Street.
Garage, Broomhill Avenue, for Mr. J. Anderson.
Garage, Louisville Avenue. Mr. J. Cameron, architect, 381 Union Street.
Granary, Cotton Street. Mr. G. Watt, architect.
Two houses, Ashley Road and Chattan Place. Messrs. Stuart & Murray, builders.
Oil-mill premises, Commercial Road: additions for the Aberdeen Commercial Company, Ltd. Messrs. Jenkins & Marr, architects, 16 Bridge Street.

Two banks are about to be erected on sites situated in Lower Abbey Street and Abbey Street, Dublin, as premises for the Hibernian Bank, for which Messrs. W. H. Byrne & Son are the architects, and premises for the Munster and Leinster Bank, for which Mr. L. A. MacDonnell is the architect.

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WALSALL.

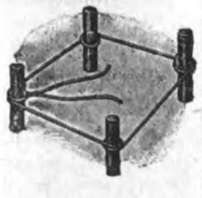
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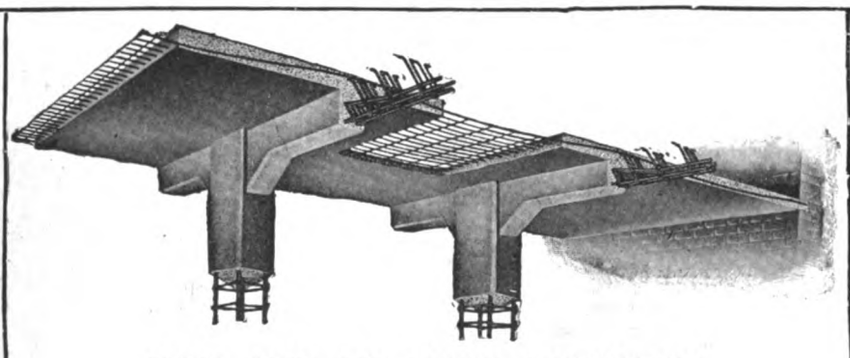
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THE ARCHITECT

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FORTHCOMING EVENTS.

Monday, March 19.

Royal Society of Arts: Aldred Lecture III., "Memorials and Monuments," by Mr. Lawrence Weaver, F.S.A., at 4.30 P.M.

Tuesday, March 20.

Society of Antiquaries: Meeting of "United Workers." Lecture entitled "The City Aspect of the Industrial Problem," by Mr. Robert Grant, at 5 P.M.

Institution of Civil Engineers: Paper entitled "The New Electric Power-house at Birchills, Walsall," by Mr. Ernest Matthew Lacey, M.Inst.C.E., at 5.30 P.M.

Wednesday, March 21.

Royal Institute of British Architects: Conference on "New Materials and Methods as Influencing Design," to be opened by Mr. H. D. Searles-Wood, F.R.I.B.A., at 5.30 P.M.

Carpenters' Hall: Lecture entitled "Character in Building," by Mr. Herbert W. Wills, F.R.I.B.A., at 7.15 P.M.

Thursday, March 22.

Concrete Institute: Paper entitled "The Rational Design of Reinforced Concrete Wharves and Jetties, with particular reference to those for Wet Docks, having a permanent Water Level," by Mr. W. Cleaver, M.Inst.C.E., at 5.30 P.M.

Friday, March 23.

Town Planning Institute: Paper entitled "Road Construction and Improvements by means of Town Planning Schemes," by Mr. W. Rees Jeffries, at 6 P.M.

THE TEACHING OF BUILDING.

A MEMORANDUM on the Teaching of Building in Evening Technical Schools recently issued gives the views of the Board of Education. It is first of all postulated that Building Instruction is conducted in (*a*) Schools wholly organised for that purpose, (*b*) Schools consisting of several departments, one of which is concerned solely with instruction in building and allied subjects, and (*c*) Schools organised for technical work generally in which building instruction is given in classes which may or may not bear some group relation to each other.

It is recognised by the Board that instruction may be given by means of (*a*) Full-time Courses, or (*b*) Part-time Courses. Full-time Courses are in two grades:—(*a*) Junior Technical School Courses, which provide instruction for boys on leaving elementary schools, and are intended to prepare them for work in skilled trades or similar occupations. These courses last for two or three years. (*b*) Technical Institution Courses, which provide instruction for youths on leaving secondary schools, and are intended to prepare them for professional occupations or for the higher positions in connection with industrial occupations generally. These courses also last for two or three years.

Part-time Courses are of two main types:—(*a*) Part-time Day Courses. These courses are provided mainly for students who are engaged in offices or in works, but who are able to devote six, eight or more hours per week to study in the day time. The students may be apprentices engaged in learning a skilled trade, pupils connected with professional occupations, or persons otherwise engaged in business occupations. (*b*) Evening Courses. Under this heading are included all those classes which provide for students who are engaged in occupations during the day time, but who are able to study a certain number of hours per week in the evening. The Memorandum before us relates to such Evening Courses only.

As regards the time to be devoted by students in evening courses, the Board contemplates an attendance of six hours a week for a period of not less than about 30 weeks in the year, preferably in attendances of two hours each on three evenings per week. It is contemplated that homework should also be included, which in the earlier stages at least should not occupy more than one evening of two or three hours per week. We certainly agree that this is the maximum that can be profitably undertaken by students who are engaged in occupations during the day time.

The Board, very rightly in our opinion, strongly recommend the establishment of grouped courses in technical evening schools in place of the older system, still, we may say, too widely prevalent, of a system of unrelated classes in various subjects from which the individual student made, usually unwisely, his own selection.

Grouped classes are classified as (*a*) Preparatory, for students under 14; (*b*) Junior, for students of 14 years of age; (*c*) Senior, for students of 15 or 16; (*d*) Advanced, adapted to the needs of older students and aiming at reaching, within the limits of the subjects covered by them, the standard of university work. As it is only in the two latter classes that specialised technical instruction is included, we need not concern ourselves further with the lower classifications.

The curricula of the grouped courses for building students are divided between Major and Minor Courses. The former include grouped courses for builders, surveyors, builders' clerks, bricklayers and masons, carpenters and joiners, and plumbers. Minor courses are intended for operatives whose ambition does not extend beyond competence in their particular craft.

The Board lay down the principle that the range of knowledge which is required of the architect in the practice of his profession is considered to be too wide to be adequately provided for under a system of evening instruction; and although large numbers of architects' pupils attend evening classes in building subjects, and derive substantial benefit therefrom, it is felt that adequate courses for such students should require, in addition, part-time attendance at day courses. "Since," say the Board, "this Memorandum has reference to evening instruction only, courses for architects are not dealt with in the following pages."

In spite of this disclaimer, we cannot help thinking that in drawing up their curricula for major courses for builders, the Board have been influenced by the requirements of architects rather than of builders or contractors. In the first place there is nothing in the major courses for builders which an architectural student does not need. Secondly, it is laid down in the advanced course for builders that instruction in building construction and drawing is best achieved by requiring the student to undertake simple exercises in practical design of buildings. The evil of such a course of instruction for builders is that they do not thus learn enough about design to produce good work, but they fancy they have learnt so much. The result is seen in the atrocities of domestic design perpetrated by the speculative builder, who sends his son to

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a technical evening school for a couple of years or so and then carries out the design—save the mark—that the boy produces. Lastly, no builder is qualified to successfully carry on his business unless he has a knowledge of matters not included in the major courses for builders, but in those for builders' clerks, viz., theory and practice of commerce, accounting, building business methods, including finance, and building law.

In their general remarks on instruction for builders there are many valuable hints for all who teach students of building. For example, wise cautions are given about the use of the lantern and cinematograph. It is rightly said that the lantern, if employed in building classes, should be used with great discretion. We should go further and say that it is better avoided altogether. It tends to break up continuity of thought and effort in class work, and often leaves only a superficial and fleeting impression on the student's mind. We are quite sure that the modern use of lantern slides is detrimental to the serious teaching of architecture. It has gained popularity because it is easy for the lecturer and amusing for the audience, but for the purposes of solid instruction the rattling through of sixty or a hundred fleeting glimpses in an evening is next to useless. The cinematograph, as the Board say, may be usefully employed to explain processes of manufacture, which the students are not likely to have an opportunity of seeing. But they add, rightly, in all cases the display should be under the control of the teacher, who should be able to stop the picture at any stage in order to give detailed explanation of any feature or process.

NOTES AND COMMENTS.

Sir Frank Short's lecture on "Mezzotints" last week completed the series at the Royal Academy winter exhibition of graphic art. In it the lecturer sketched the history of mezzotint engraving from its invention by Ludwig von Siegen through the three stages of precursors, the blossoming time, and the decline in mixed methods, the lecturer meanwhile explaining by diagrams the processes by which the plate is rocked and scraped. Examples of the eighteenth-century Masters, shown by lantern views, were followed by others illustrating the work of Turner, which gave occasion for the interesting comment of a practitioner on the use of mezzotint, aquatint, and etching in combination. Sir Frank Short expressed the view that there was a useful field still presented by landscape for mezzotint in the future.

At a meeting of the Royal Archæological Institute last week Mr. Hadrian Allcroft read a paper on the original castle of William de Warenne, first Earl of Surrey, and the early history of the Cluniac Priory of St. Pancras, near Lewes. He contended that the earthwork known as the Calvary Mound was really the mound on which the Norman castle was built; that the castle was erected by de Warenne and demolished before his death, about 1089; and, further, that the castle was the missing castle of Laquis, mentioned in Domesday and never yet located. Laquis, he contended, rather than Lewes, was the name of the earliest castle, and evidence from the foundation charter and other sources was adduced to show that the stronghold occupied a site within a few yards of the Priory of St. Pancras.

In the first of a series of lectures to be delivered during the spring and summer months the Vicar of Selby spoke of the upper portion of the east window in the Abbey. He claimed that the window formed the chief glory of the Abbey as far as stained glass was concerned. It was a "Jesse" window, and in the tracery in the upper part there was a pictorial representation of the "Last Judgment." The "Jesse" portion of the window would be described on a future occasion, but the broad outline of the representation was the recumbent figure of Jesse, and from his heart issued the branch which in S-like formation encircled his descendants up to the Blessed Virgin at the top of the central light—St. Mary holding the Holy Child on her left arm. Above this in the tracery was the representation of the "Doom," or "Last Judgment." The glass was said to be the second finest as a "Jesse" window in England, and the tracery to be second only to the great west window in York Minster.

It is gratifying to know that the Libraries Committee of the Birmingham City Council and also the Chamber of Commerce of the city have expressed their approval of a scheme for the establishment of a commercial library. The Chamber of Commerce will find the room, pay rent and rates, and provide heating and lighting, whilst the City Council will run the library, provide the staff, and supply the literature.

The City Council of Manchester have been informed by a letter from the solicitors to the executors of the late Mr. J. T. Blair, of Whalley Range, that the deceased gentleman has bequeathed the whole of his large collection of oil paintings and water-colours to the Corporation. The list includes, amongst others, works by the following artists: Oil paintings—Romney, Raeburn, Gainsborough du Pont, Downman, Gainsborough, Harlow, Lely, R. Wilson, Turner, Constable (2), Creswick, Pyne, Copley Fielding, Stark, J. Linnell, sen., George Col, Hogarth, Muller, Cox, Cooke, Holland, Vicat Cole, F. Dicksee, A. Stokes, J. Farquharson, Alma Tadema, Albert Moore (2), Peter Graham (2), Leader (5), Marcus Stone (4), Luke Fildes (2), Godward (2), H. W. Davis (2), Sir F. Leighton (1), Calderon, E. Stott (2), Campbell Taylor, Kiessel, Perugino, Blair Leighton (4), Van der Heyden, Soest, Bouguereau, Verboeckhoven, Boudin, Zoffany (attributed to Leonardo da Vinci), Vermier of Delft. Water-colour drawings—Turner (27), De Wint (7), H. J. Johnstone, Stooke, Mrs. Allingham (2), Anton Mauve, J. Cazin, Fortuny, Zien, Cozens, Sam Bough (3), Alma Tadema, W. Crane, Collier, Stansfield, Austin, Q. W. North, Brabazon, Gastencan, Clausen, A. Goodwin, F. Jackson, Napier Hemy, Phillott, Clays, Miss Gow (2), Holland (3), T. M. Richardson (2), John Varley, Muller, Holman Hunt, Millais, Pyne (2), Birket Foster (3), Cecil Lawson (2), Burne-Jones (2), Callow, Constable, De Cox (13), W. Hunt (3), S. Palmer, Downman, Copley Fielding, Prout, Barrett, Sell Cotman, Bonnington.

In a letter to the daily Press, Mr. G. Foster Clark, the Mayor of Maidstone, expresses the view of his Council that Kent had no right to approach the question of the reconstruction of Charing Cross railway bridge solely from the point of view of its effects upon Kent, but that any effort made by the London County Council and the Royal Institute of British Architects to beautify the central city of the Empire should be supported if possible. At the same time it was inclined to believe that the construction of a modern and much more commodious station on the south side of the Thames under the conditions proposed by the above bodies might be a considerable advantage to Kent.

The project for the establishment of war museums in various parts of the country, affecting strongly, as it must do, patriotic sentiment, will commend itself at once to popular sympathy and support. While the movement is national, the generally accepted view is that the museums themselves should be local, and be the institution by municipalities of a patriotic and permanent memorial of what not only our gallant soldiers have done and are doing in the great war, but of the activities, varied and essential, of the civilians at home. Already preliminary steps have been taken in Edinburgh in regard to the scheme. Mr. Curle, the Curator of the Royal Scottish Museum, had submitted to him from London suggested lines on which such a museum might be set up, but as local interest is the primary factor to be kept

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in view he communicated with the civic authorities on the matter. Councillor Macfarlane, the Convener of the Museum Committee, is meantime, at the request of Lord Provost Lorne MacLeod, examining the proposal, and will report upon details as soon as possible. The formation of a war museum in the city is not likely to be proceeded with immediately, as other matters of more urgency are being dealt with, but the proposal, which, of course, is cordially approved, will not be lost sight of, and what can be done without interference with more pressing work will be done to prepare the way for definite action later on. Edinburgh is already rich in material for such a museum, for the glorious record of the Royal Scots is one which will make living history.

For many years past Hull has been in doubt as to the origin, if not the character of its ancient coat-of-arms, and on several occasions the Corporation has consulted the Heralds' College, without getting any very precise advice. The problem is, apparently, still unsettled. In "The Armorial Bearings of Kingston-upon-Hull" (A. Brown & Sons, Hull, 3*s*. 6*d*. net) Mr. Joseph H. Hirst, the city architect, gives a very careful record of all that is known on the subject, and maintains that the three Crowns were not, as has been often alleged, ducal ones. It is quite certain, he says, that the arms of Hull were assumed many years before 1331, the date of the first seal, at a period when the English peerage did not include the title of "duke." With "some diffidence," though clearly after careful study of the subject, he suggests that "the arms of Edwin, the first king of Northumbria, who was converted to Christianity by St. Paulinus, were the arms which later on suggested to the leading authorities of Hull an idea for the town's flag." As to the vexed question whether there is in Hull any "correct" example of the arms, Mr. Hirst says there are hundreds of correct examples, and that from the standpoint of heraldry it is immaterial how the three Crowns are displayed so long as they are one above another and of the same size on a field of blue.

Mr. T. Sheppard, Curator of Hull Museum, has republished from the East Riding Antiquarian Society's Transactions his account of "The Correct Arms of Kingston-upon-Hull," together with some notes on Mr. Hirst's researches into the subject (A. Brown & Sons, Hull, 2*s*. 6*d*. net). Mr. Hirst, he says, wrote as an architect; Mr. Sheppard thinks such matters should be handled by the historian, and he remarks that he does not know of a single correct representation in any prominent part of Hull—not even on the Town Hall, or the municipal note-paper. He gives a sketch of what he believes to be the "correct" representation—"Azure three ducal coronets in pale, or."

The annual report of the Sheffield Chamber of Commerce and Manufactures contains some interesting references to the state of Sheffield trade during the past year, and to the valuable modernisation of methods of production which is in progress.

"The demands made upon the local trades for war purposes during the past year," says the report, "were far in excess of 1915, and there was a continuous increase of output from the first month to the last. That the city proved equal to the call upon its resources and at the same time continued to supply men to the Army is a striking tribute to the management of the various works. Such a result could not, of course, have been achieved but for the large number of women who have been pressed into the service of steel and munition makers, and who adapted themselves to their new work much more successfully than had been deemed possible.

"But what more than anything else has enabled Sheffield enormously to increase her output at a time of scarcity of labour and materials has been the adoption throughout the staple industries of scientific organisation in all the departments of the works. This modernising of the steel trade has enabled the management to get more work out of their resources, and the new system will prove a valuable asset to the city after the war. The war conditions have driven out many obsolete customs and practices which by wasting time and effort frustrated all attempts to lower production costs. So far as organisation of businesses and shop practice is concerned it is no exaggeration to state that a new and better era has begun in the Sheffield trades. The larger call for war steel has necessarily been accompanied by a corresponding restriction in the facilities for dealing with commercial business. Notwithstanding many obstacles, however, Sheffield has continued to maintain throughout the year a substantial volume of trade with overseas markets, and thereby rendered valuable assistance in maintaining the national finances.

"On all sides one sees evidence of preparation for the after-war trade. Premises are being extended, improved plant installed, and up-to-date methods adopted in offices as well as works. This forward movement is conspicuous in the old craft industries as well as in the more modern steel trades.

"Perhaps the most important development of the year has been the attention given to the electric melting of steel. Something like 30 electric furnaces have been installed in Sheffield, and in the near future the number is likely to reach nearly 50, which will represent a very considerable addition to the local output of the more expensive steels. A furnace called the Greaves Etchells furnace has been designed and made in Sheffield with satisfactory results."

In an address to the London School of Economics on the subject of "Metals as the base of our Imperial strength," Mr. O. C. Beale spoke of the hampering effect of German metal monopolies on the profitable use of the Empire's metallurgical resources. In Australia, before the war, private effort to retain zinc in the Commonwealth for smelting had failed. Zinc concentrates up to 500,000 tons, averaging over 50 per cent. metal, were shipped yearly from Australia to Germany in German vessels. This was due to false doctrine, and the culpable neglect of the Governments. Germans had never invented any great new process, but producers had from first to last been bluffed by the belief dinned in their ears by Germans that only in Germany could zinc be smelted satisfactorily.

So, also, in copper. At the outbreak of the war our Empire's whole output of copper was under foreign domination and control. The world's output was directed from New York by a mysterious and hyphenated group of five men. It was believed that the central financial power of this group lies at Frankfort, but though the extent of the combination had been revealed in our courts, it had not been ended. Before the war, its workings ensured that the Australian electrolytic copper all went to Germany, mainly through London. Long-term contracts were so designed by the Germans that even war itself would not invalidate them.

Again in nickel, the output of the French mines in New Caledonia was controlled by New York. Mr. Beale declared that the great Australian mines and refining firms had now ensured the emancipation of the Commonwealth from the German metal ring's interference and control. To show the value of State action he quoted the instance of Straits tin. The Empire produces more than twice as much tin as the rest of the world. Before the war a great American syndicate bought land near Singapore to set up a refinery and handle the trade. But the Executive of the Malay States passed an ordinance saying that the refinery products must go to the United Kingdom. Upon this, the American syndicate sold its concession at a loss, and we still command the tin supply of the world.

Similar action should, in the interests of the steel trade, be taken with tungsten. Burma headed the list of producers, and four-fifths of the output was absorbed in making ferro-tungsten. Yet, before the war, the

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Germans controlled the output and sale of tungsten. The importance of the Empire controlling such an indispensable product was not lessened by the fact that its cash value might be small.

So, also, with manganese. British India yielded the greatest proportion of manganese, and this fact gave Britain a trump card in the steel trade, because we could regulate the selling price and the destination of manganese under Government ordinance.

ILLUSTRATIONS.

OLD ATHENÆUM OR ASSEMBLY ROOMS.
ANDERSON'S COLLEGE.
BLYTHSWOOD PARISH CHURCH.
MITCHELL, WATSON & CO.'S BUILDINGS.

Our views of these notable Glasgow buildings complete the series of illustrations to the lecture on "Glasgow Architecture," by Mr. John Keppie, F.R.I.B.A., which appeared in the issues of "The Architect" for March 2 and March 9.

ALTAR AND REREDOS, NORTH CURRY, SOMERSET.

This reredos, together with panelling to the adjoining walls, has been erected in memory of Captain Charles J. Chard Barrett, of the Royal Scots Fusiliers, who fell near Ypres. The work has been executed in oak by Messrs. Boulton & Sons, of Cheltenham, to the designs of Mr. F. Bligh Bond, F.R.I.B.A. The chief interest lies in the subjects selected for the three panels, which are carved in low relief, and exhibit three principal events connected with the Resurrection of our Lord. These (from left to right) are as follows:—

(1) The appearance of Jesus to the two disciples at Emmaus.

(2) The appearance to the Eleven as they sat at meat.

(3) The visit of SS. Peter and John to the Tomb, seeing the linen clothes lying. In this panel the idea of the spiritual Body is brought out, the clothes being shown as though undisturbed—the cloth about the head resting on the stone pillow as it would have been when the body was laid there.

STAFFORD HOWARD MEMORIAL SCREEN, THORNBURY, GLOUCESTERSHIRE.

This oak screen to the south aisle of Thornbury Church, Gloucestershire, enclosing the south chapel of the chancel, was the gift of the late Sir Stafford Howard, Bart., of Thornbury Castle, in memory of his wife. It has been designed by Mr. F. Bligh Bond, on local models, and the general detail of the tracery is such as is characteristic of the county. Messrs. Boulton, of Cheltenham, are the executants.

THE CONTROL OF STREET ARCHITECTURE.

The subject for discussion at the informal Conference of the Royal Institute of Architects, held on March 7, in the Council Room of the Institute, 9 Conduit Street, was "The Control of Street Architecture." Sir Aston Webb occupied the chair.

Sir John Burnet, who opened the discussion, said for some time he was troubled as to what was meant by the "control" of street architecture. From what he seemed to remember of discussions in those rooms, control was represented by the county council, the borough councils, and their officials, and frequently a third body was suggested, as if in want of another antagonist, in the form of a Minister of Fine Arts—something in point of fact that should naturally be opposed by all true architects. He had no theories to offer in regard to these authorities. There were doubtless gentlemen present who could speak for the mistakes of these authorities and explain their ideals with a much greater knowledge than he could. He could only address them as a practising architect, who for more years than he felt or cared to think about had been brought into touch with them in many towns, and many parts of the country, and had recognised the essential nature of their functions, and with here and there an exception, the invariable courtesy with which their officials exercised their difficult task. Sometimes he had been tempted to think that the experiences of local authorities with architects might form interesting, if not humorous, reading. But in expressing his thoughts on the subject he begged them to believe that he was far less desirous to advance his personal views than to place the subject before them in a way that might lead to profitable discussion. What after all was "the control" but the recognition by the people of the fact that if the citizen was to enjoy liberty in the erection of the buildings he required, he could only do so on lines which did not curtail the liberty of his fellow citizens? That the town should be healthy, that the accident of fire in one building should not put the surrounding buildings in peril, that one building should not depend on its neighbour for support, that in the streets all should have an equal opportunity of what the French called "réclame" without prejudice to those using the pavements, it was obviously the duty of a central authority to secure. The central authority might find it necessary in the exercise of that duty to widen a street or streets, form open spaces, or even produce a scheme of "general improvement" involving joint consultation with an architect or an engineer, but the width of the improved streets, the size of the open spaces, and the scope of the general improvement being settled, the ground provided had all to be occupied under the same laws or control. The general character of the town or city must, he believed, be fixed not so much by the individual buildings fronting the streets, as by the breadth of view and general foresight with which the "plan of improvement" had been conceived, and the extent to which it indicated that its author had grasped its geographical and other essential conditions in his selection of prominent sites for its public or official buildings, and the extent to which its streets and avenues would be improved. If he was correct in that, it was not too much to say that in their selection of an adviser and their wise discussion of his scheme, the public authorities for the time being had a very great responsibility, as on their decision depended, not only the appearance of the town, but the health and happiness of its people, and therefore the true prosperity of their industries. It might interest them in that connection, and as showing that town councils sometimes felt this responsibility in their choice of an architect, when he told them that the Town Council of Edinburgh in 1767 having had a competition for the laying out of the eastmost part of what was now the New Town, were so pleased and relieved by the plan of the successful competitor (Mr. James Craig) that they presented him at once with the freedom of the city in a gorgeous silver casket, and also with a gold medal. So long as there was no æsthetic control over street architecture the interest and beauty of the street must depend upon the obvious integrity of purpose of the various citizens building on that street, the value they placed upon art as assisting them in their aims, and their capacity to choose an architect who could throw himself with some enthusiasm into these aims, and express them—within the limits imposed by the central authority—in a cultured and artistic way. The width of the street, its plan (straight or curved), its level, the position of the site in the street, or at the meeting of streets, the length of the frontage to the street, and the height he was permitted to build, were all data which an architect recognises must control his design. He did not deny that such freedom would lead to endless variety, but if it were possible to suppose that each variety was designed by an architect of ability, or even by architects of similarly efficient training, there would be a sympathetic note throughout the buildings which any artist would recognise. If by any chance there were buildings of poor or even bad design, might the street not be a more human and a more interesting place of resort for the citizens, and from their point of view infinitely preferable to the finest uniform conception which would but form an architectural screen exhibiting a similarity of purpose

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among the various proprietors which did not exist, and from which the law might ultimately allow them to escape? It seemed to him strange that with the example of Regent Street, and the horrible process of gradual change which its present condition illustrated, and the examples of many squares there and in other parts of the country, defaced and now being defaced by this and that alteration, they as architects should still be even talking of the "City beautiful," as to be arrived at by controlled or controlling design. Let the city be controlled by laws of health, of safety of person and property, and in all that made it a healthy and pleasant place in which any man or woman might exercise their calling, and let the architect who so planned it suggest the arrangement of sites for its public buildings, schools and other public services, parks and squares. But do not interfere with or attempt to control the buildings generally. In other words, if the authorities, so far as the improvement or extension of an existing town was concerned, had their monument in the scheme of improvement and extension they authorised, in the general lay-out of the streets and avenues, and in the position and design of the public buildings they found it necessary to erect, he thought it was better that the citizens should be trusted to erect creditable structures for their own occupancy.

Businesses of all kinds were becoming every day more highly organised to meet the necessity of competition in all varieties of public service. Their directors already demanded that the housing of their organisations must, if economy of administration was not to be interfered with, be more simply and fittingly arranged; and were increasingly alive to the fact that the general style of their buildings, in the interior as well as the exterior, might produce that atmosphere which he believed they already recognised was an important element in their success, and he did not think it was too much to hope that with such clients architects could make noble and picturesque streets. If they agreed with him in his contention that such a course was the only sound one, sound in so far as it appeared to him to be true to the instincts of their generation, then what part could that Institute, as representative of what they believed to be an essential public service, play in the scheme of general progress?

He suggested that if great architecture was the true and beautiful expression of the needs of the people, then they must study as citizens to intelligently appreciate these needs and the various laws under which they might be expressed. They would have then as architects nothing to do but to see to their ability to express them beautifully. And so he came back, as he fancied he was meant to, to the improvement of the Institute as an educational body answerable for the efficiency of its members in the public service, and whose status, in the public estimation, depended on that efficiency and that alone. In true appreciation of the spirit of the Middle Ages let them be prepared to face with intelligent appreciation and enthusiasm the various problems of their generation, fearless of the forms demanded, and made possible to them by the variety of material and workmanship they now had at command. In so doing they would not only give their client what he wanted, but retain for the craftsman that ever-changing application of his work which alone could give it interest and make it a pleasure to him. He still believed all good workmen knew, and enjoyed, their work in proportion as they recognised it to be a corporate part of a fit and beautiful building, meeting a definite and obviously useful purpose. He would, therefore, submit that the only control required was by the municipal or county authorities whose present laws and regulations should only ensure what was necessary to the health of the city and the safety of person and property, and who should be responsible for the development of these laws as the advance in general knowledge might render necessary. On their part as architects it lay with them to accept such laws as they accepted the requirements of their client as defined by him in consultation. This appeared to him the only safe course, and the only one which could lead to sound modification of the law as its results were experienced in practice. As a profession they need not fear such laws being needlessly restrictive. No city, not even London, could afford to make and continue laws or regulations rendering it impossible for great merchants and others to construct what they required and what they could obtain in other cities without prejudice to the interest and safety of the public. They were living in rapidly changing times, and it behoved them as members of a profession acting under ever-changing conditions to keep themselves able to appreciate the artistic possibilities of each change as it came. That meant high artistic training which was only to be obtained as students by close study of the masterpieces of the past, but, having grasped the spirit in which they were conceived, let them apply the spirit and not the letter, trusting the faculty they had obtained for seeing the beautiful to grow as it was kept in use; keeping it refined not so much by the memories of the past, but, he would suggest, by keeping themselves, as they did as students in the studio, in touch with the best work of their best fellow-students, now their colleagues.

Mr. John Murray pointed out that where sites were controlled by the authority acting for an estate, dominating estate conditions were imposed on building lessees, which included the use of certain materials, and these conditions had an important influence upon the architecture and upon the estate. There were, however, more universally numerous owners of separate buildings that were not upon a single estate and the street façades then became of varied hues, with many buildings devoid of architectural merit. This state of things, owing to the numerous ownerships, could not be controlled except by the ability of the individual architects, and that could only be met by guiding and training whatever innate art their architects possessed. He suggested that the modern architect, in order to practise his art successfully to-day, should combine a full knowledge of art, science, and finance as applied to architecture, the last not being the least essential from the patron's point of view.

Mr. A. E. Richardson suggested that the control and co-ordination of architecture, in so far as it applied to the buildings of London should be vested in a Government Department, but that there should be a jury consisting of eminent architects elected annually by the Institute, and acting in an honorary capacity to advise the department on questions of expediency and good taste. He pointed out that architects in addition to having to satisfy the requirements of the L.C.C. and the district surveyor, would submit their proposals to the jury for consideration and recommendation. He did not see that this would mean any hardship to the architect, and it was a system which worked well in Paris.

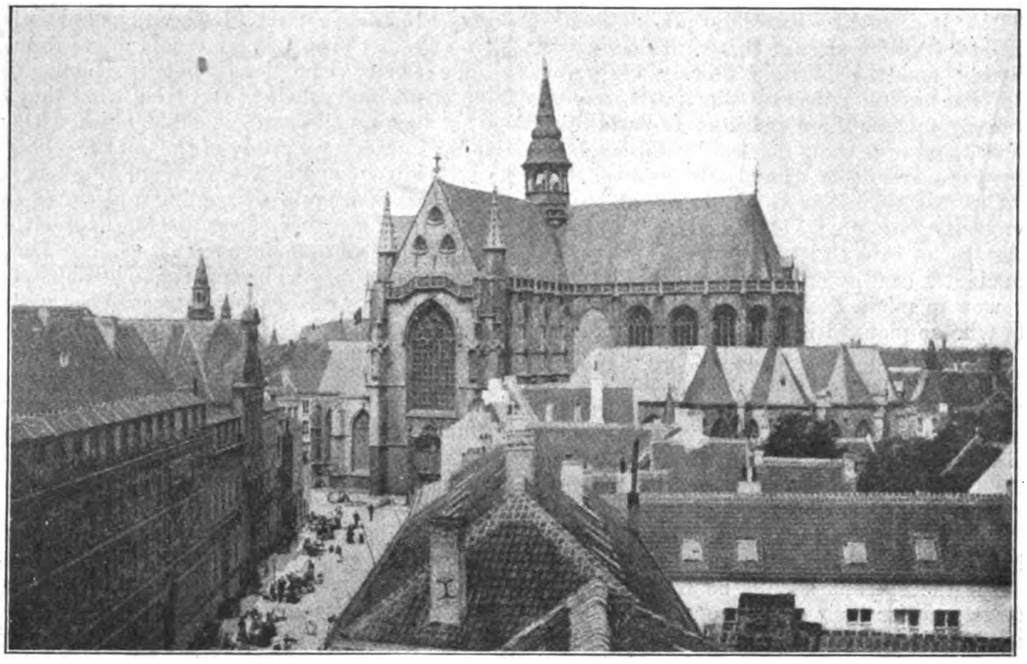
Professor Lethaby said he would make the definite proposal that the Institute as the outcome of the Conference should appoint a committee with a view to improving London architecture. Such a committee, he said, should deal with the whole question of buildings much in the spirit with which the London Society dealt with questions of planning and lay-out and the larger amenities. The Institute should bring building authorities into conference and should be in closer touch with the Government in all matters which concerned building.

Mr. Fitzroy Doll believed that to enable the Institute to carry out its aims it must be properly represented in the House of Commons, and he suggested that the Chairman and Sir John Burnet would make fitting representatives.

Mr. H. V. Lanchester thought that London was halting between two views of architecture. Some held the view that commercial blocks should be modelled and grouped as a whole, whilst others considered there should be individuality. Either of the ideals could be accepted, but they would have to make up their minds one way or the other.

Professor Adshead considered that the question was not one altogether for architects: London was a town of which a great part was constructed under an aristocratic regime with a large amount of considered composition.

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CHURCH OF ST. MARTIN, ALOST.

The main issue was whether they ought to try to continue the effort to arrive at compositions in streets under the democratic conditions which now prevailed.

Mr. Wigglesworth suggested that the unsatisfactory state of the streets was caused by what he might term the small fry of building owners. If the Institute tried to make its views known good would probably result.

Mr. Jemmett thought the question was one which the Art Committee of the Institute might take up.

Mr. Forsyth said that when the Art Committee attempted to do anything it was put on one side by the Council. Before discussing the question of control or freedom he considered the Institute should put its own house in order.

The Chairman said he was personally rather in favour of more control than some of the speakers appeared to be, for he felt that the restrictions imposed by clients and partly by local authorities often acted as a stimulus to them to try and meet the problems put to them. He agreed that the matter was urgent, and would move that the views of the Conference be brought before the Council of the Institute, with the request that consideration should be given as to how they could be carried out. Professor Lethaby had often referred to the lack of civic pride, and that was the thing they had to stir up amongst the inhabitants. He did not agree with the remark sometimes made that there was nothing in London to be proud of. On the contrary, he felt that there was a great deal to be proud of. As to the suggestion of representation in the House of Commons he did think it would be a good thing to get some members of Parliament as honorary members of the Institute.

The meeting agreed to the suggestion of the Chairman.

REGISTRATION OF BUSINESS NAMES ACT, 1916.

THE Council of the R.I.B.A. desire to call the attention of Members and Licentiates to the above Act, which applies to professions as well as to trades or businesses. In any case of doubt it would be advisable to write to the Registrar or consult a solicitor. The following is a short note of some of the provisions of the Act, which may be found to apply to practising architects:—

1. Every person or firm carrying on business for profit in the United Kingdom under a business name not consisting of his true surname or the true surnames of all partners, without any additions other than Christian names or initials, must register under the Act.

The addition of the words "and Sons" or "Brothers" or "& Co." appear to render registration necessary, but where two or more individual partners have the same surname the addition of an "s" at the end of a surname does not of itself appear to render registration necessary.

2. Registration must be effected between February 22 and March 22, 1917, and after that date all business letters, &c., of persons or firms required to be registered must have mentioned in legible characters the true surname and initials of all persons or partners in the firm.

3. Any change in the name of a person or firm must be registered within fourteen days, and also if any person or a partner in a registered firm changes his residence.

4. There is a penalty of £5 a day for non-compliance with the Act, and this penalty applies to every individual or member of a firm, and there are other heavy penalties as to defaulters, recovery of debts, wrong statements, &c.

5. Registration forms may be obtained (gratis) after February 21, 1917, at any Post Office. The registration fee is 5*s*., stamp on form.

6. All communications should be addressed to "The Registrar of Business Names," 39 Russell Square, London, W.C.

DELENDA EST ALOST.

By JOHN A. RANDOLPH.

A GERMAN major recently expressed pity for Alost, stating he knew it was shortly to suffer even more than Termonde did in 1914.

Alost was considerably damaged in the street fighting early in the war, and St. Martin's Church was reported to have not altogether escaped injury. But the major's statement implies the destruction of the church and picturesque belfry and Maison-Commune, and the wholesale burning and sacking of this irregularly-planned, modern-looking, and unattractive town.

The church, said to have been designed by the architect of Amiens Cathedral, was never completed, several bays and the west tower being lacking. The building dates from the last years of the fifteenth century, and the transepts remind one of those of St. Michael's at Ghent and of Notre Dame au delà de la Dyle at Malines, though the porches at Alost are richer.

Baedeker is wrong in stating that the completion of the tower was begun in 1907, for a jumble of mean houses stand in the way, and therefore there is no possibility of completing what was never begun.

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The main roof over the choir ambulatory is a curious feature, and from it extend the roofs of the apse-shaped radiating chapels. The choir apse arches are very nearly straight-sided, and consequently rather ungainly. There is no triforium, but, instead, a traceried corps de garde all round the church under the clerestory and under the two-light apse windows.

The town hall was rebuilt, after a fire, in the forties of last century, and another fire, in more recent years, also endangered old work, but the elegant turret, with



INTERIOR OF CHURCH OF ST. MARTIN, ALOST.

chime and gable of the Maison Commune, and the Flamboyant little projecting building, date from 1487.

Statues of the unfortunate Counts Egmont and De Hoorne are in panels on the face of the tower, and a beautiful Madonna, in a niche, on the face of the small gable above the windows. Two Renaissance gables of four are seen in the background of our view of the Maison Commune; they are all supported by an effective colonnade.

VICTORIA AND ALBERT MUSEUM.

THE war having temporarily claimed the London residences of the Duke of Buccleuch, the Duke of Devonshire, and the Duke of Westminster, the valuable collections of furniture which they contained have been deposited by their owners on loan in the Victoria and Albert Museum, and the public is thereby indebted to them for a highly important and interesting exhibition.

The principal collection is that lent by the Duke of Buccleuch from Montagu House. It consists for the most part of French furniture belonging to the period of Louis XIV. to XVI., and includes a remarkable series of Boulle examples, pieces signed by Carlin and Joseph, chairs and screens covered with Beauvais and Gobelins tapestry, and many other valuable specimens.

The collection lent by the Duke of Devonshire from Devonshire House consists almost entirely of furniture designed by William Kent, the architect of that house when it was rebuilt in 1734 after a fire in the preceding year. It includes about twenty typical examples of Kent's work, and thus will afford to students a unique opportunity of studying the characteristic style of this important artist.

Among the pieces lent by the Duke of Westminster from Grosvenor House, the most striking are a pair of Boulle armoires, similar to the well-known examples in the Wallace Collection and at Windsor Castle.

The exhibition has been arranged in the Loan Court on the ground floor of the Museum, and is now open.

A brief descriptive list of all the furniture exhibited, with thirteen illustrations of selected pieces, will be issued, price 3*d*.

THE LATE MR. HIPPOLYTE J. BLANC, R.S.A.

THE following obituary notice appeared in "The Scotsman":—

Scottish architecture has suffered a loss in the death from pneumonia in his 73rd year of Mr. Hippolyte J. Blanc, R.S.A., J.P., which took place at his residence, The Neuk, Strathearn Place, Edinburgh, on March 12. Mr. Blanc, for a long period, has been prominent in architectural work in this country. He has been chiefly associated with ecclesiastical architecture, and several fine examples in Scotland will perpetuate his name. He was entrusted with the erection of the Coats Memorial Church in Paisley, which was erected to the memory of the late Thomas Coats by the members of his family. This building, the cost of which amounted to over £110,000, is one of the most important and recognised to be one of the finest examples of Gothic churches recently built in Scotland. His name will also be associated with important works of restoration in connection with Edinburgh Castle, including the Parliament Hall, which has been the scene of notable incidents in Scottish history, and which housed the first Scottish Parliament. This work was undertaken and carried through as the result of an offer by the late Mr. William Nelson, who undertook to defray the cost. Mr. Blanc's skill in this interesting department of architectural learning was also displayed in his restoration of the ancient tower in Edinburgh Castle known as the Argyll Tower, now one of the outstanding features of the Castle buildings. He was one of the best known architects for public buildings in recent years, and in partnership with his son, executed important works in London. One of his most important undertakings was the design and erection of Bangour Asylum for the Edinburgh Parish Council, costing about £230,000. This Asylum has in intervening years received widespread attention from public authorities as a notable departure from the older style of institutional building to the village group system. The large series of buildings with their central offices and various accessories have since the outbreak of the war formed an important centre for the treatment of wounded soldiers.

Mr. Blanc was born and educated in Edinburgh. He was a pupil of the late David Rhynd, architect, and he studied in the National Medallist Science and Art Department School, and for a number of years before engaging in his profession on his own account, was Chief Assistant in the Office of H.M. Board of Works. His professional career has been one of great activity. In addition to the buildings mentioned he was charged with the designing and erection of a number of well-known churches in Edinburgh, among which may be mentioned St. Matthew's, St. Cuthbert's, Christ's Church, Mayfield United Free Church, and West Port United Free Church. Elsewhere in Scotland he designed St. James's Church, Paisley, Broxburn United Free Church, West Kilbride United Free Church, Kirkliston United Free Church, Greenbank United Free Church, Greenock, and other

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BELFRY AND MAISON COMMUNE, ALOST.

churches in Tain, Broughty Ferry, Perth, Invergordon, Lasswade, and Markinch.

Another important department of his work was the designing of mansion houses, of which there are numerous examples throughout the country, including Fergusiie Park, Paisley. In his treatment of business premises he was successful in combining an attractive design with appropriateness in regard to the purpose for which the building was to be used. Probably his most recent important work was the New Edinburgh Ladies' College in Queen Street, a portion of which is completed. The fine baths and gymnasium at Dunfermline were built to his plans.

His standing as a Scottish architect was recognised by his appointment as a Royal Commissioner representing Scotland for the International Exhibitions at Brussels, Turin, and Rome.

His professional abilities were widely recognised, and at various times he acted in important capacities. In 1892 Mr. Blanc was elected an Associate of the Royal Scottish Academy. He became a full Academician in 1896, and for a number of years acted as the hon. treasurer. He was also a Fellow and for some time a member of Council of the Royal Institute of British Architects and an F.S.A. Scot. He was several times elected President of the Edinburgh Architectural Association, and was a prominent member of the Scottish Society of Arts. One of his recreations was the photographing of interesting architectural buildings, and this interest was reflected in the fact that he was for many years president of the Edinburgh Photographic Society. He gained a medal in Edinburgh for design in 1886, and at Paris in 1889. Mr. Blanc was the author of numerous papers and works on architectural art and archæological subjects. He was a member of the Scottish Conservative Club, and of the Scottish Arts Club, where he was well known. He was esteemed for his high sense of business morality and his generosity was well known. He is survived by his widow, who is a daughter of Mr. Thomas Shield, of London, and one son, who has been associated in business with him for some years.

THE LUMEN AS THE DESIRABLE UNIT FOR EXPRESSING LUMINOUS VALUES.*

This is the third time within the writer's knowledge that the subject of the Lumen has been discussed before this Society. The first occasion was the very able paper by Mr. A. P. Trotter on "Nomenclature and Definition of Photometric Magnitudes and Units" before the Illuminating Engineering Society's meeting, May 31, 1914.

Again, at the March 16, 1915, meeting of this Society, the writer presented a paper on the "Practical Rating of Incandescent Lamps," the latter part of which was devoted to a discussion of the Lumen as the desirable unit for expressing luminous values.

Mr. Trotter in his paper presented a most able argument in favour of the retention of candlepower as against the adoption of a new unit, but the writer thinks it is clearly shown in the discussion contributed by Mr. C. C. Paterson and Prof. Blondel, that the trend of scientific work and definitions was at variance with the ideas and system advanced by Mr. Trotter, and that evolution of practical experience unavoidably leads to a flux conception in lighting problems.

Since that time, developments in illuminating work, particularly in electric lamps, with the increasing varieties of filament shapes, have emphasised more than ever the need of some more definite unit than candlepower for expressing luminous values. As Prof. Blondel stated, photometric units should be—

1st. Scientific—that is to say, in direct and intimate relation with other branches of physics and carried to the same degree of scientific precision.

2nd. International—that is to say, containing terms capable of being adopted for all countries.

He pointed out that the word "candlepower" is not possible to adopt, internationally, because while such a term is rendered venerable by its years of usage in England, it is completely unknown in other than Anglo-Saxon countries.

Prof. Blondel then states "the photometric system should be framed to meet the requirements of science, and not to comply with the old-fashioned practices dating from the early days of public lighting, nor to meet the views of those who, as Mr. Trotter says, 'know little or nothing about angles and flux.' On the contrary, the system should be *in advance* of its time. It should provide engineers with scientific ideas of illumination and conceptions in harmony with the progress of other branches of physics. It is for these reasons that it is necessary to define luminous flux (a special form of energy) before proceeding to define the source of light. The conception of a flux is so convenient in practical lighting problems, both as regards interior and public lighting, that people have come to make constant use of it, and in fact can hardly avoid doing so. And how is it possible to define illumination in a scientific manner without recourse to this quantity?"

Supplementing these points, Mr. C. C. Paterson, of the National Physical Laboratory, said that the conception of light as a flux is a very natural and common one, and the expressions frequently used, such as a lamp "shedding" light, and "floods of light" indicate that the common every-day conception of light is that of a flux and not that of illumination.

Mr. Paterson further stated: "I really do not think it is possible to get rid of flux as the primary idea in light, for the reason that if we look at all other branches of physics where radiation or its equivalent is concerned, there is none in which the idea of flux is not the fundamental one." He instances the cases of sound, heat and magnetism as subject to this condition. He then says: "This being the case, I think with light we ought to keep our definitions on all fours with our definitions and conceptions in other branches of science. Radiated energy is always thought of, not as the source which is

* Abstract of a Paper by Mr. F. W. Wilcox, being a contribution to a discussion by the Illuminating Engineering Society.

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radiating it, but as the 'something' which is passing through the ether towards us. Therefore I venture to suggest that if we adopt Mr. Trotter's suggestion we shall be introducing an entirely new system into scientific definitions, and we ought to have some very good reason indeed before deciding to do so."

These remarks deal with the important theoretical points in the discussion of May, 1914. In the paper the writer presented at the April, 1915, meeting, he endeavoured to give some practical reasons in support of the Lumen as bearing on the question of electric incandescent lamps.

It is proposed in this paper to summarise the situation to date, which necessarily, of course, includes a repetition of some of the points already presented, in order to present a full case for Lumen and show its practical value and application in lighting and illumination problems. In order to do this, it would be well for us to start with the deficiencies of candlepower as a unit, which deficiencies are becoming increasingly emphasised from year to year, and have rendered it necessary seriously to consider a more suitable unit for definitely expressing luminous values. Candlepower will be retained as the unit of luminous intensity, but just as in the case of a pump, the pressure which the pump exerts gives no proper indication of its capacity, so in the case of illuminants the candlepower gives no complete indication of the actual quantity of light given by the illuminant.

The fundamental requirement is a definite unit which will always clearly and invariably express one thing. This condition the Lumen complies with and the candlepower unit does not. We well know, for example, the numerous varieties of candlepower, such as the mean horizontal, mean spherical, the upper mean hemispherical, and the lower mean hemispherical, the maximum candlepower values in different directions, and the "apparent" candlepower values obtained when we put a lamp in a reflector and re-distribute the light. Such complications do not arise with the Lumen. When employed either as a measure of luminous value or to express the efficiency of the illuminant, its terms are precise. For example, when we express the efficiency of an electric lamp in the usual term "watts per candle," a query arises as to what variety of candle is meant—whether the mean spherical or the mean horizontal or the tip end value, &c., whereas "watts per Lumen" or Lumens per watt" is wholly definite.

Again, the unit of luminous values should not permit of manipulation by the alteration of its apparent value through change of shape of the luminous body (the lamp filament) or through the use of any external accessories, such as reflectors, &c. Experience has shown that alteration of values by this means has been the chief defect of candlepower as a unit. Numerous examples may be given, as it is common knowledge how the filament of an electric lamp can be reshaped and concentrated so as to give its maximum value in any given direction, and by simply frosting or silvering the upper part of the glass bulb, a lamp may be made to give apparently very much increased candlepower value for the same energy from the same length and section of filament.

Again, the variations in candlepower values obtainable in different directions with different kinds and shapes of reflectors is well known to all. The same amount of light flux (Lumens) is made to give now 50, now 100, now 500 or more candlepower value.

A further serious defect of candlepower is that the value materially alters (as in the case of light distribution curves), according to the direction in which it is measured. Practically a unit of candlepower should have the same value whether measured horizontally, vertically, or at any angle. Actually we know it does not, as is shown by a consideration of the spherical surface surrounding a lamp. This is a somewhat mysterious and complicated problem to a layman. Even those who understand the subject fully are in difficulty to properly judge of the merits of different candlepower curves without employing a planimeter or Rosseau diagram; such a condition tends to misleading results and frequent misrepresentations in



TRANSEPTAL ENTRANCE, CHURCH OF ST. MARTIN, ALOST.

support of unfulfilled claims. Whenever anyone brings up the point that the Lumen is a scientific unit of some complexity, I am always reminded of the exceeding complexity involved in the candlepower distribution curves and the Rosseau diagram. Surely a unit such as the Lumen, which definitely means one thing, will be far easier to explain to and be understood by those who are dealing with illumination, than candlepower with its varieties of mean horizontal and mean spherical, &c., and such complications as Rosseau diagrams, &c.

The case is no longer that of the early days—the simple light value given by a lamp in a given direction. The modern case must provide for expressing luminous values given by lamps in combination with reflectors or glassware, distributed directly or indirectly via the ceiling, or part directly and part indirectly as in semi-indirect lighting. The idea of flux of light suits these complex conditions admirably, and the Lumen correctly expresses luminous values for all cases and conditions.

The Lumen is strictly defined as the unit of luminous flux. Luminous flux is radiant power evaluated according to its visibility, *i.e.*, its capacity to produce the sensation of light. This sounds somewhat formidable, but so does a full and correct definition of most terms or words. I daresay the full definition of a kilogram would dismay numbers who employ it constantly in buying and selling.

Briefly stated, the Lumen is the unit of the quantity of light flowing from a lamp or luminous source.

The value established for the Lumen is the amount of light from a unit source falling upon a unit surface, all points of which are at a unit distance from the source. Let us be more specific, and assume a source of one spherical English candle, and place this at the centre of a sphere of one foot radius. It follows that the Lumen is the amount of light which is falling upon one square foot

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of surface of this sphere. The total area of a sphere with one foot radius is 4π or 12.57 square feet. As each square foot represents a value of one Lumen there will therefore be 12.57 Lumens on the total sphere. It follows from this that the lighting value in Lumens of any lamp or luminous source is obtained by multiplying the mean spherical candlepower of the source by this figure, 12.57.

It follows from the above definition that a Lumen will give an intensity of one foot candle over an area of one square foot. The average illumination at all points of our unit sphere mentioned above will be one foot candle.

We thus have the total light output of the lamp definitely measured by the Lumens, instead of light intensity in some one direction by candlepower. We have the illumination values measured by Lumens per square foot. As each Lumen corresponds to one foot candle per square foot, the term "foot candles per square foot per watt" (the expression for efficiency of illumination) becomes more simply "Lumens per watt." We also have the efficiency of the lamp clearly and fully measured by Lumens per watt, instead of watts per candle. Thus the Lumen is an all-round term of general application in lighting work.

In the previous discussions on this subject, the deficiencies of candlepower were admitted by almost every one discussing the matter. Many, however, seem to have been of the opinion that the adoption of "mean spherical candlepower" would solve the difficulties, and they were not favourable, therefore, to the adoption of the Lumen. It becomes desirable, therefore, to consider the merits of mean spherical candlepower as compared to the Lumen.

Mean spherical candlepower as a unit is best described as a mouthful. The term is a compound of a number of words, generally expressed by the letters "M.S.C.P." which will always be more or less cryptic to most people, and can hardly be called a practical expression for a unit. If the unit of luminous value was to be the mean spherical candlepower, we would have to adopt some new term or name to call it by. It is too cumbersome an expression as it stands, and would not serve. Another objection to mean spherical candlepower is its similarity to the expression "mean horizontal candlepower" (M.H.C.P.). It perpetuates the term "candlepower" with the inheritances associated with this term, and is therefore sure to result in confusion, not only in the minds of laymen, but of engineers as well.

It is certainly much better, in adopting the flux idea for expressing luminous output, to entirely drop the term "candlepower" in any expression for this unit, and substitute an entirely new term, such as the Lumen. In this way, we cut loose from all the previous deficiencies and misconceptions associated with the term "candlepower" as set forth herein. It may be somewhat difficult to adapt every one's mind to the use of the new term "Lumen," but such an obstacle would be far easier to overcome, in the writer's opinion, than it will be to instil in everybody's mind an intelligent understanding and use of the terms "mean horizontal," "mean spherical," "tip end candlepower," &c.

The conception of mean spherical candlepower does not lend itself readily to express the volume of light in any given zone or section of space surrounding a luminous source. It is difficult, for example to conceive expressing the amount of light in a 10° zone as so many "mean spherical candlepowers." The conception is perfectly clear, however, when we express the volume of light in these zones in Lumens. Now, I admit that the Lumen is a pure numerical function of the mean spherical candlepower, as its derived value shows (the Lumen = 12.57 times the mean spherical candlepower), so that the two quantities are of the same general character. Nevertheless, the practical reasons mentioned above are strong reasons, in the writer's opinion, for the adoption of an entirely new term or unit instead of the cumbersome term and conception of "mean spherical candlepower."

Again, mean spherical candlepower does not lend itself to the expression of illumination values as the Lumen does. We have noted above that the Lumens per square foot can be used as a unit of illumination intensities as a substitute for the expression "foot candles," and that "Lumens per watt" is a simple expression for the efficiency of illumination, as a substitute for the present term "foot candles per square foot per watt." I need only point out how wholly inept the term "mean spherical candlepower" would seem in such connections, as, for example, the confusion idea in such an expression as "mean spherical candlepower per square foot," or per any area.

If the majority of engineers are clearly in agreement, as previous discussions show, as to the desirability of adopting some more comprehensive unit, such as the "mean spherical candlepower," surely it is a small matter as to whether we go a step further and have an entirely new unit of the same character as the mean spherical candlepower, but one of a more simple name; one freed from any limiting preconceptions and conditions associated with candlepower; one which is scientifically correct and properly co-ordinated in a complete system of lighting units, and one therefore more fully and better qualified to express clearly and definitely the conception of light as a flux—the fundamental idea where a radiation such as light is concerned.

I think the conclusions are unavoidably in favour of the Lumen, and that inevitably the merits of the Lumen will ultimately force its adoption, in spite of individual opinions to the contrary. It therefore seems desirable that the way should be opened for the free use of this new unit, and its adoption promoted in every way by the full co-operation of lighting appliances for manufacturers and illuminating engineers generally.

The adoption of the term "Lumen" and familiarity therewith makes it easy to lay out lighting systems. In employing Lumens in practical illuminating problems, engineers have recourse to what is known as a utilisation efficiency factor, which expresses the efficiency of utilisation of the light. This is nothing more than the percentage of the total amount of Lumens given by a luminous source which is made available upon the working plane or illumination area considered. These utilisation efficiencies vary from 60 per cent. to 70 per cent. down to as low as 15 per cent. to 20 per cent. They depend essentially on the colour and character of walls and ceiling, and amount of light reflected therefrom. They are determined for the different characters of interiors and for different systems of lighting, and when determined are tabulated in convenient table form for use.

In lighting a room, the area of the room as given in square feet is multiplied by the intensity desired in foot-candles. This at once gives the net Lumens required. To find the total Lumens required from the lamps, we divide the net Lumens by the utilisation efficiency or factor decimally expressed. We then have the total Lumens which the lamps must give, and by reference to a table of Lumens values for the various sizes of lamps, we can select the most suitable size to accord with the desired number of points to be fixed, or we modify the number of points to accord with the Lumen value of some desired size of lamp. The simple equation for such work is:—

$$\frac{\text{Floor area in sq. feet} \times \text{Intensity in foot-candles.}}{\text{Utilisation efficiency as a decimal} \times \text{Lumens per lamp.}} = \text{Number of lamps.}$$

This is an example of the simple problem, but the calculation for side walls and more complicated cases may be worked out in a similar way.

I have advocated the adoption of the Lumen and supported its case solely on its merits, and I firmly believe that these merits will prevail and ultimately establish this unit in practice. I have not referred to the endorsement of the Lumen in other countries, but it is interesting to know that it has received the endorsement of the American Illuminating Engineering Society, of the Association of the Edison Illuminating Companies in the United States, of the National Electric Light Association and other bodies, and is being employed in regular practice in the rating of electric lamps. The Lumen is of Continental origin, and originally proposed by Prof. Blondel of Paris.

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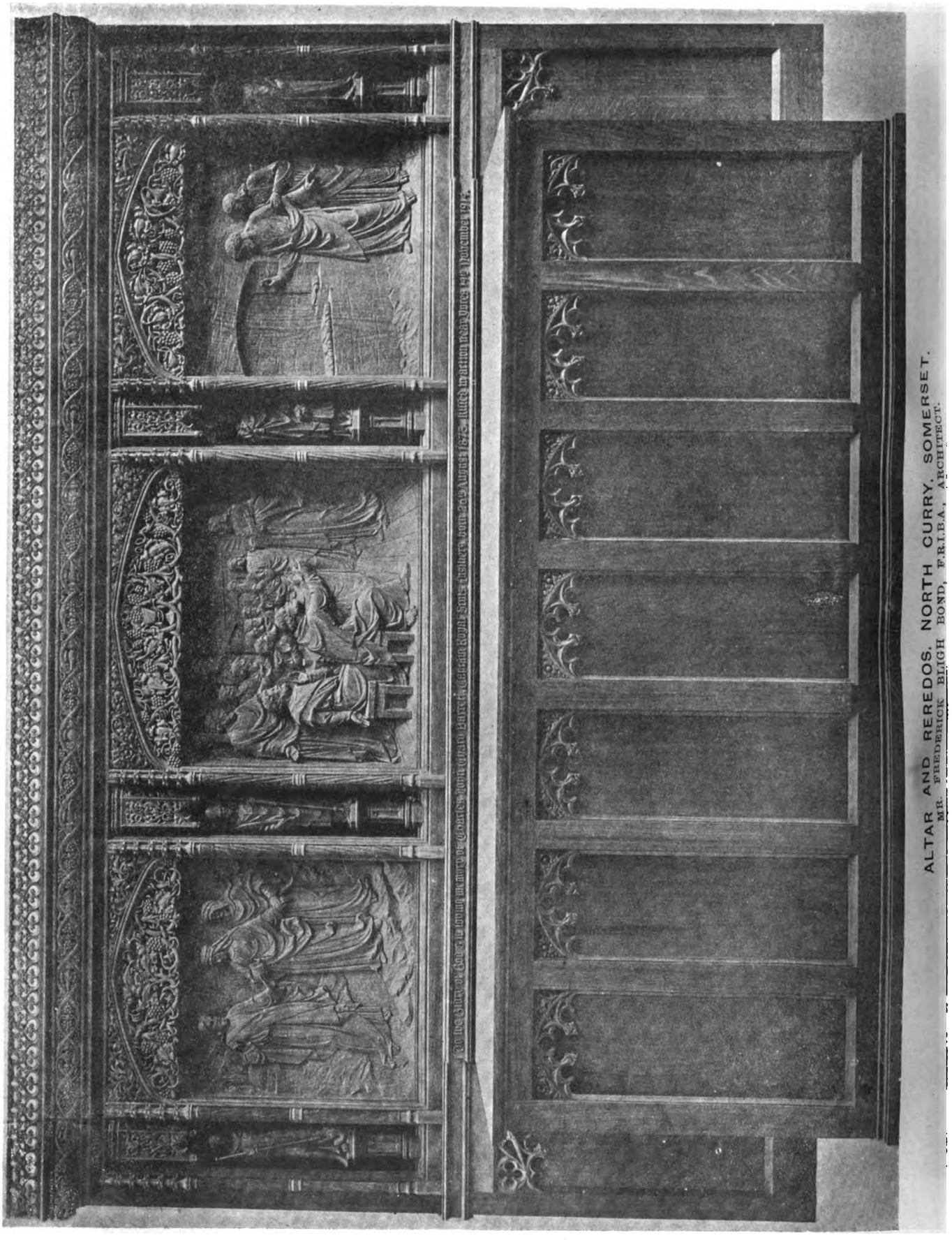
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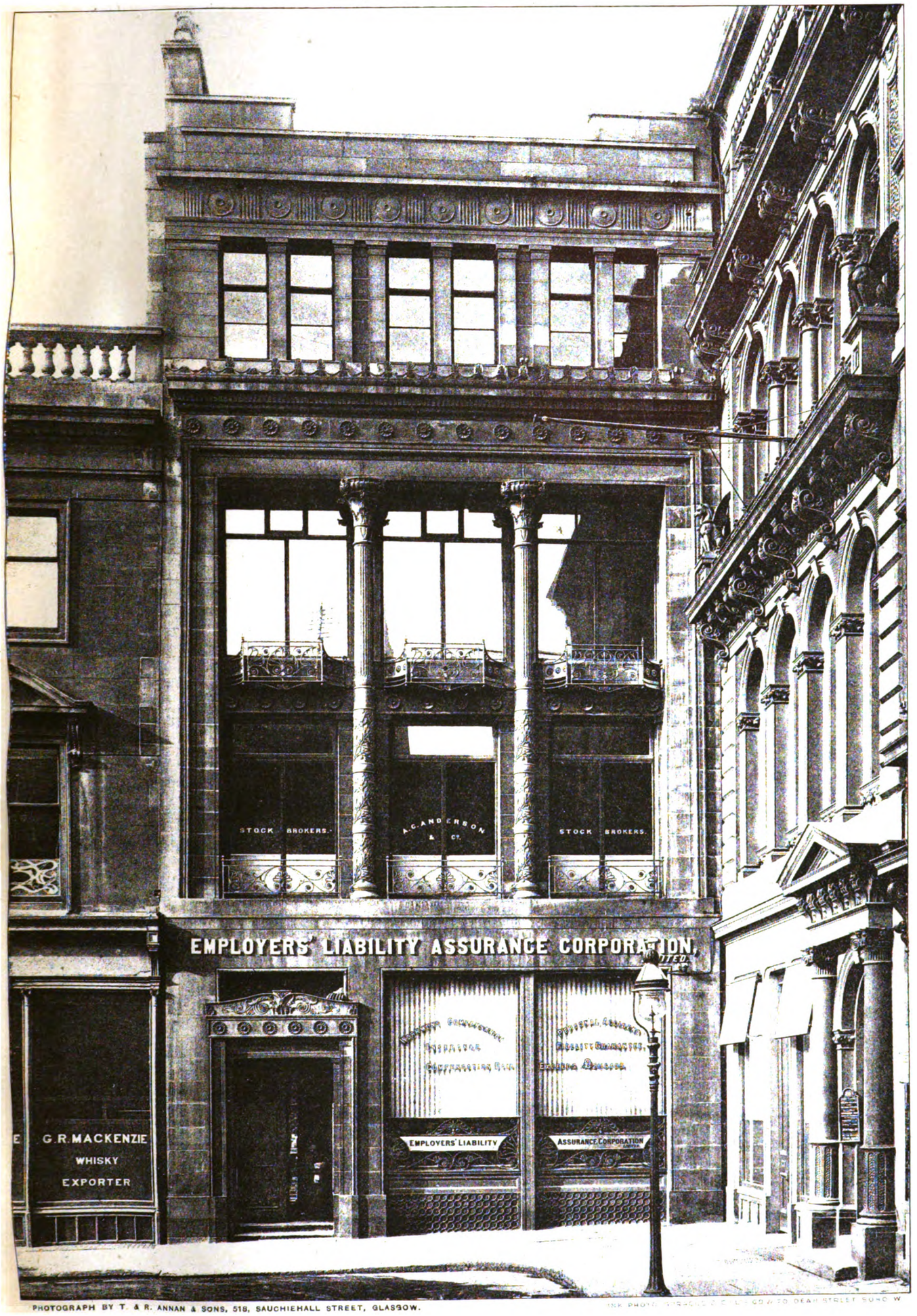
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In view of the Lumen's merits as an all-round term for lighting practice, and the general situation as described herein, the writer hopes that all manufacturers of lamps and lighting appliances, supply companies, both gas and electric, and all those having to do with light and illumination in Great Britain, will co-operate to assist in the introduction and popularisation of the Lumen.

This programme would, for the time being, simply follow the plan of the principal electric lamp manufacturers mentioned above, of stating in addition to the candlepower values the values of their lamps in Lumens. No better work could be undertaken by this Society than assisting to this same end, particularly in preparing and publishing a monograph or pamphlet describing the Lumen in clear, popular language, and illustrating by numerous examples its meaning, its value, and its application to practical lighting problems in various ways.

THE SHORTAGE OF TIMBER.

CONTROLLER'S WARNING TO BUILDING TRADE.

THERE was a large and influential gathering at a meeting under the auspices of the English Forestry Association, held at the Surveyors' Institution, on Monday, March 12, to consider the problem of native timber supplies, in view of the Prime Minister's statement regarding the restriction of imports. Major G. L. Courthope, M.P. (the President), was in the chair, and the meeting was honoured by the presence of two Government representatives, namely, Sir Bampfylde Fuller, K.C.S.I., C.I.E. (the Controller of Timber), and Mr. J. Harling Turner (Director of the Agricultural Section of National Service).

The Controller of Timber outlined the general principles of a scheme which, he explained, would need the sanction of the Secretary for War, under whose orders he worked. He said our imports of timber amounted to no less than six million tons a year, and if we could effectively cut down the large total we should do perhaps one of the best things in the world to free ourselves from the dangers which German submarines were forcing upon us. He insisted on the need for economy in the use of timber, and said there was no question that timber was expended in some directions very wastefully indeed. We had at present in this country not more than four or five and a half months' supplies of timber stocks, if we consumed our timber at last year's rates. We had to consider how we could economise so as to make our existing stocks last a great deal longer than they would have lasted last year. Timber must not be employed wastefully in putting up buildings. If used for buildings it must be used simply as a skeleton. As far as possible in all directions, reinforced concrete must be substituted for it. There must be nothing like a continuous timber roof. Waste of timber at the present moment would be a scandal. The next step was that the War Office should actively produce timber—cut it down, convert it, and put it on the market by its own direct initiative. The Home Grown Timber Committee and its staff would come over to the Directorate of Timber Supplies in the War Office, and it would be a matter, not of starting a new Department, but of developing the one already existing. That Department was to be very large. In order to produce pitwood, they required a division of 12,000 to 14,000 men, and to produce sawwood equal to the amount we imported would require many divisions, he should say 60,000 or 70,000 men. It was hoped to secure the necessary numbers by importing white labour from other countries and overseas Dominions. They were not going across England like a horde of caterpillars, turning this fair land into a barren wilderness. It was not the intention to cut down the churchyard yews or do anything of the kind. He wanted as far as possible to maintain the amenities of the countryside, and to work on terms of good-will with every proprietor in England.

Mr. Harling Turner said he was desired by Mr. Neville Chamberlain, the Director of National Service, to say he would do everything he possibly could to try to find labour for the cutting and conversion of timber in Britain. The Department had been asked to provide 10,000 men for work in the woods, and they would try to supply the men, if the owners of woodlands would undertake to provide expert foresters to train them for the work.

Sir Ivor Herbert, M.P., said it had occurred to him and others who were interested in colliery production and the production of timber, that if the two interests dealt directly with one another in the matter of pitwood they would probably be relieving the Controller of Timber of some of his work, and getting on more rapidly with the objects which they and the Controller had in view. Would there be any objection on the Controller's part to the owners of woodlands communicating and dealing direct with the Association which he (Sir Ivor) understood had been set up by the colliery owners to secure the supplies of pitwood which they required?

The Controller replied that he was in a curious position because he could not make any engagement off his own bat, but he wished to say that so far as lay with him he would do his best to facilitate any private arrangements between landed proprietors and pit-owners. He thought it most desirable, and he did not want to interfere in the least where things would go on without his interference.

Sir Ivor Herbert said he and others could answer for finding the labour, and doing the work, if they were only allowed to carry the thing through.

GARDEN CITIES AND TOWN PLANNING ASSOCIATION.

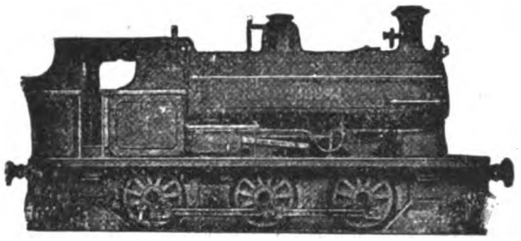
THE fact that the movements for garden cities and town planning are making strides, even during war-time, was strikingly brought out at the meetings of the International Garden Cities and Town Planning Association and that of the British Association of the same name, which were held on February 14.

A considerable part of the report was taken up by a record of the work which has been done for the benefit of Belgian architects and surveyors and others refugee in this country. The work has received warm recognition from the Belgian Government, who are kept in close touch with what has been done. Throughout the whole of the past year weekly meetings have been held at the offices of the Association, 3 Gray's Inn Place, and a programme of lectures, many of them illustrated by lantern slides, has been carried out. In addition, a series of excursions to churches and other buildings of architectural interest, to waterworks, sewage disposal works, electricity works, and road-making work has been carried out. The Belgian members have appointed their own Study Circles Committee, which deals with all the internal arrangements at present. Progress is also being made with the proposal, which has received the sanction of the Belgian Government, that at the close of the war there shall be erected as a memorial to Belgium, on a site yet to be decided, a garden city which shall at once be a tribute to the nations of the world and an example to them. At the request of the Belgian Government, work is now proceeding with the compilation of a complete bibliography and catalogue of prints, &c.

Besides this, progress was reported in many quarters. In Russia considerable advance has been made both in legislation and in public opinion, and the first steps have been taken towards the forming of a garden city scheme upon approved lines. In Warsaw a garden city scheme had made considerable progress at the time when the invasion of the country stopped all work and intercourse with this country.

One of the principal results of the Association's work has been found in the results from its Australasian town planning tour by Messrs. W. R. Davidge and Charles C. Reade. After two years of continuous lecturing, Mr. Reade has been appointed town planning advisor to the

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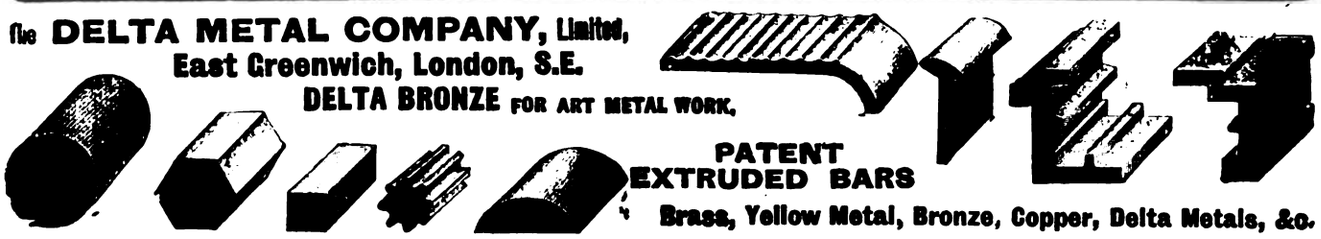
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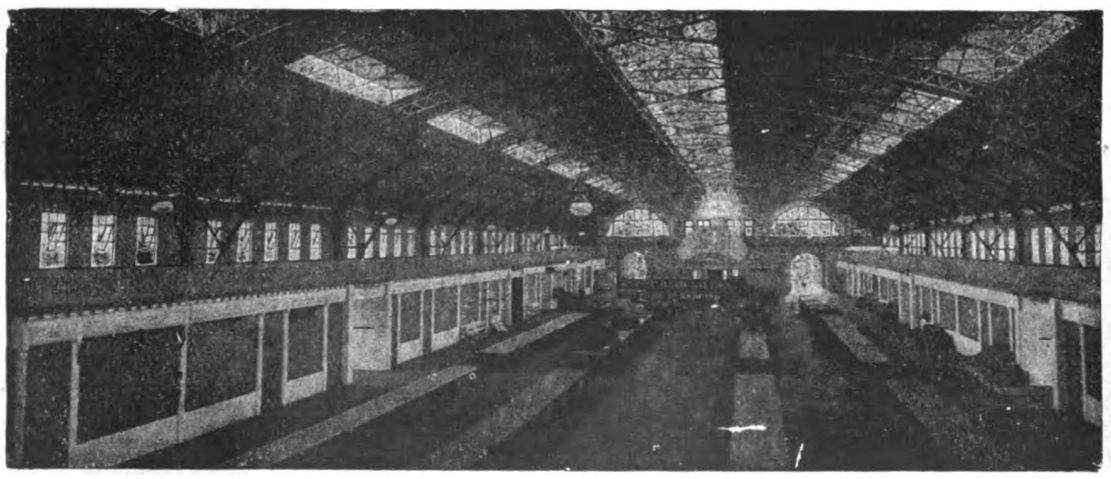
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South Australian Government, and town planning associations have been set up in every State of the continent.

The correspondence with the United States of America had more than doubled, and a movement was at present on foot to form a garden cities and town planning association of America.

In regard to the purely British part of the work, land settlement for sailors and soldiers and rural reorganisation had occupied a prominent part. Over seventy societies of public utility engaged in building operations in different parts of the country are affiliated to the Association, and much good work has been done in the direction of housing for munition workers and others, on which points the services of the Association have been constantly sought.

The problem of the housing of the dockers in consequence of the huge extensions of the London Docks is engaging special attention, and it is hoped to be able to formulate a scheme which will avoid the present conditions of housing in the dock districts.

The Marquis of Salisbury was re-elected president, and Mr. Cecil Harmsworth, M.P., chairman of the Association for the ensuing year.

Special reference was made at the meetings to the marvellous vitality which the Association had shown under extraordinary difficulties. The keeping alive of an international association at this time is a matter of great difficulty, especially when it is realised that the funds come very largely from foreign countries and our overseas Dominions, and at both meetings a special resolution was passed congratulating the secretary on the achievement of what had seemed an almost impossible task.

BUILDING WITHOUT LICENCE.

At Bow Street Police Court, Samuel Haskins & Brothers, Ltd., Maple & Co., Ltd., and Frank Lewis Griggs were summoned, before Mr. Graham Campbell, for carrying on certain building and construction work at corner premises known as Nos. 1 and 2 Coventry Street, and No. 1 Wardour Street, without a licence, contrary to the Defence of the Realm Regulations; and Joseph Mendlesohn (otherwise known as Joseph Maxson) and Herbert Haase (trading as Taperell & Haase (were summoned for aiding and abetting them.

Mr. Roome, conducting the proceedings on behalf of the Director of Public Prosecutions and the Minister of Munitions, said that the premises were formerly well known to Londoners as "one of the resorts where succulent sausages and other delicacies of the Fatherland could be obtained." Messrs. Haskins applied to the Minister of Munitions for a licence to carry out work in connection with plans for adapting the place for the business of a ladies' costumier, at a cost of about £2,000. Mr. Maxson was described as the proprietor, and Messrs. Taperell & Haase as the architects. Simultaneously another application in respect of work at the same premises to be used until the termination of the war was made by Maple & Co. Both applications were refused. Afterwards Messrs. Haskins made a further application for a licence to carry out work estimated to cost £500. It being considered, however, that that was really part of a much larger scheme, this application was also refused. Then Messrs. Haskins wrote saying that they would not further trouble the Minister of Munitions as the plans had been altered so as to reduce the cost of the work to £450.

It was afterwards discovered, however, said Mr. Roome, that various structural and decorative work was in progress, the cost of which would considerably exceed £500, and a letter was sent to Mr. Maxson stating that the fact of the work being divided among a number of contractors did not relieve the proprietor of the business from the obligation of obtaining a licence. Mr. Maxson replied that he had abandoned his original scheme, and that only temporary work sufficient to enable the premises to be used until the termination of the war was being carried out. He afterwards admitted that the total cost of even these reduced works would exceed £500, but he urged that he had to pay £4,000 a year rent and £1,000 a year in rates. Eventually, without prejudice to possible legal proceedings, permission was given for the work to be completed under certain conditions. The only extenuating circumstances in favour of the defendants, said counsel, was that this was the first prosecution of its kind.

Acting on the advice of their counsel all the defendants pleaded guilty.

In giving his decision, the magistrate said that Mendlesohn knew all about the work that was going on. He knew that different firms were being employed, and had a good idea of what the total cost would be. He would have to pay a fine of £100. He drew no distinction between Messrs. Haskins and Messrs. Maple, because their attention was drawn to the regulation by the correspondence that took place. These firms would each have to pay a fine of £75. The defendant Griggs was in a different position, because his firm had no correspondence with the Ministry of Munitions, and probably their attention was not called to the regulation. Griggs would have to pay a fine of £50. The defendant Haase would only be fined £25. The magistrate added that each of the defendants would have to pay £5 5s. costs.

BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders, the address is, as a rule, local.)

ENGLAND.

DERBYSHIRE.

Derby.—Electric Power Station: extension (£30,000).

DURHAM.

Seaton Carew.—Two houses: additions for Mr. J. Pickard.

West Hartlepool.—Works, Rainsforth Terrace: additions for South Durham Steel and Iron Company.

GLOUCESTERSHIRE.

Berkeley.—Parish Church: restoration.

LANCASHIRE.

Accrington.—Proposed Fire Station, Manchester Road and Grange Lane.

Oldham.—Nurses' Home, Westhulme. Borough surveyor.

NORTHUMBERLAND.

Corbridge.—Proposed district hospital.

Newcastle-on-Tyne.—First Northern General Hospital (Armstrong College): extension (£4,000).

YORKSHIRE.

Barnsley.—"White Hart" Hotel, Peel Square: alterations. Mr. Wade, architect, 10 Pitt Street.

Cleckheaton.—"Pyenot Hall" Mills: additions. Messrs. R. Castle & Son, architects, London City and Midland Bank Chambers.

Rolling Mills: addition for Messrs. H. Crowther & Son. Messsrs. Howorth & Howorth, architects, Old Bank Chambers.

SCOTLAND.

Buckie.—Engine house, &c., for Scottish Co-operative Society.

Washhouse and enlargement of workshop, Bank Street, for the Trustee of Mr. John Simpson.

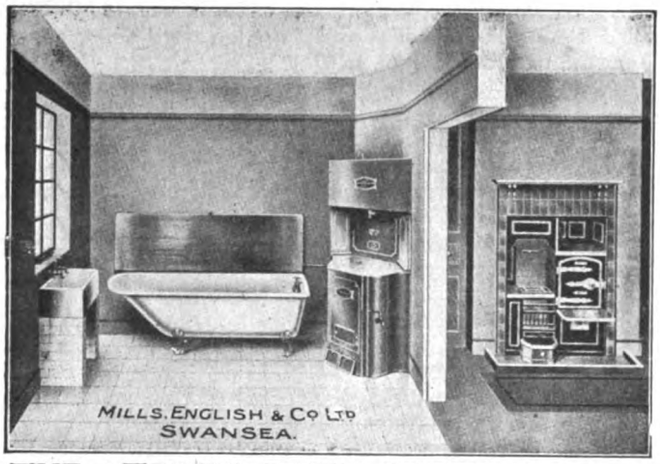
Dunfermline.—Hall, Rosyth, for the Congregational Union.

Kinghorn.—Premises for Mr. J. Fletcher (Montrose).

Stirling.—No. 2 Lennox Avenue: motor garage for Mr. J. Stewart.

No. 49 Upper Craigs: alterations for Mr. B. de Ponic

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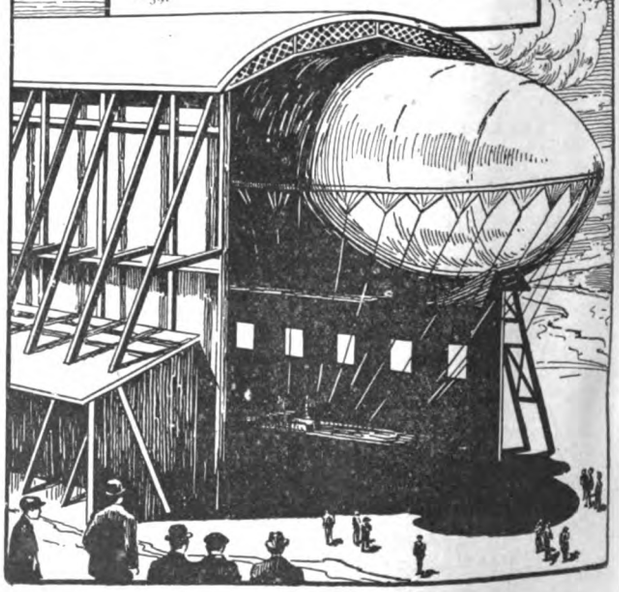
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FORTHCOMING EVENTS.

Friday, March 23.

Town Planning Institute: Paper entitled "Road Construction and Improvements by means of Town Planning Schemes," by Mr. W. Rees Jeffries, at 6 P.M.

Tuesday, March 27.

Society of Antiquaries: Meeting of "United Workers." Lecture entitled "The Problem of Industrial Self-government," by Mr. G. D. H. Cole, M.A., at 5 P.M.

Institution of Civil Engineers: Lecture entitled "The Decimal System of Coinage, Weights and Measures," by Mr. Harry Allcock, M.I.E.E., A.M.I.Mech.E., at 5.30 P.M.

Wednesday, March 28.

St. Paul's Ecclesiological Society: Lecture entitled "Use of various forms of the Cross in Flags and Standards," by Rev. H. Bedford Pim, M.A.

Carpenters' Company: Lecture entitled "Building and Furnishing: The Right Way and the Wrong Way," by Mr. W. C. Lewis Hind, at 7.15 P.M.

Saturday, March 31.

Edinburgh Architectural Association: Visit to Brunstone House, Joppa.

Wednesday, April 4.

Carpenters' Hall: Lecture entitled "British Forestry—Past and Future," by Professor Wm. Somerville, D.Sc., M.A., F.L.S., at 7.15 P.M.

Wednesday, April 11.

Edinburgh Architectural Association: Annual Business Meeting.

FURTHER EDUCATION.

THE quickening of interest in national education, which has been one of the phenomena of mental activity aroused by war conditions, has been especially manifested in respect of that large group of educational activities, roughly covered by the term "Further Education," which fall outside the secondary school and university, and embrace what is commonly understood by Technical Education, or that department of instruction which is specifically directed towards fitting the recipient for a definite and particular occupation.

Further Education, then, embraces a wider scope than Technical Education, and is of the first importance for the welfare of the nation, both from the point of view of training for good citizenship, which is the chief problem of adolescence, and from the point of view of specific training in the scientific and other studies that bear directly upon the successful conduct of industry and commerce.

It has seemed to the Board of Education that the conditions are now favourable for proceeding with certain reforms, which, indeed, have long been overdue, and the preparation for which has occupied much of their time and attention during several years, in the administrative and financial basis upon which Further Education is carried on by Local Education Authorities and Governors of Technical Schools, and is supervised and financially aided by the Board themselves as the Central Education Authority for England and Wales.

From the existing structure of the Regulations for Technical Schools, &c., which dates from the days of the Science and Art Department, the Board has evolved a "Draft of Proposed Revised Regulations for Continuation, Technical, and Art Courses in England and Wales." The Board desire to emphasise the fact that what they now publish is not a cut-and-dried scheme, but a draft which is still open to reconsideration and improvement, and on which, in particular, the frankly expressed views of Local Education Authorities will be heartily welcomed by them. The draft is based upon the existing system of voluntary attendance at continuation and technical schools, but the Board evidently contemplate the possibility "of a different and more comprehensive system being established."

The main ideas of educational administration on which rest the changes of machinery entailed by the draft Regulations are: (1) The need for a complete and systematic plan of further education in each area properly related to elementary and secondary schools and universities, adapted to local needs and particularly to industrial needs, and offering to every student facilities for a graduated and progressive course of instruction suited to his or her requirements. (2) The position of the Local Education Authority as the body responsible for formulating and carrying out such a plan. (3) The more complete responsibility of the authority for continuation-course work, and the devolution upon it of many of the minor matters at present supervised by the Board in detail under the existing Regulations. (4) The recognition of the distinctive status and position of the larger and more advanced schools under the new title of local colleges. (5) The need for securing the interest of employers and workpeople in technical instruction, and for obtaining teachers with trade experience for such instruction. (6) The need for developing in particular the higher technical and research work done in local colleges. (7) The importance of continuing general education side by side with technical instruction, particularly by means of grouped courses for younger students, and of providing facilities for disinterested studies, making for wise living and good citizenship.

It will thus be seen that the Board have in view a devolution from themselves to Local Authorities of a large measure of organisation and administration, the keynote of the contemplated advance being the Local Education Authority's "plan," and an attempt has been made, while reserving a reasonable measure of ultimate administrative and financial control to the Board, to construct the Regulations as an elastic framework capable of being filled with varying types of plan.

The putative advantage of such a system of devolution is that the Local Education Authority would be more fully in touch and more fully cognisant of the predominant local industries for which educational provision of a specialised character is required. The weakness of the system lies in the tendency of Local Authorities to aim at a complete curriculum for some items of which they have not, within their own area, a sufficiency of students to enable them to provide adequate technical instruction. This tendency is particularly marked in schools of art, the managers of which are apt to think, for example, that they must have courses of instruction in architectural design, wood-carving, embroidery, metal work, and so on, whether they have many or few real vocational students for such subjects. Hence the calibre of the instructors becomes of a low order, and to fill the classes amateurs are swept in, who, by their lack of

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earnest endeavour, exercise a demoralising influence upon those who are, or should be, devoting their whole energy to fitting themselves for their life's work.

The present wave of enthusiasm for a great development of science as a dominant subject of instruction and research, in view of its application in the struggle for industrial efficiency and supremacy, has possibly influenced the Board of Education in the position they take up in respect of art education. They define that position thus:—

"As regards schools of art, the Board have removed certain detailed restrictions imposed upon the schools under the existing regulations, and have made a few minor alterations which, as regards the great majority of schools, only confirm the existing practice. The Board recognise that the existing organisation and administration of schools of art, particularly in relation to other forms of education, is capable of improvement; but in the absence of any general consensus of opinion as to the lines on which improvement is possible among Local Education Authorities and other persons and bodies interested in the teaching of art and its application to industry, they do not propose to make any substantial changes in their regulations relating to schools of art."

This terrible admission of weakness can be only the result of a habit of mind that regards art as something extraneous to the necessities of life, as a luxury that may be admitted in days of prosperity, as an estimable form of mental culture that lies far outside the domain of commercial and industrial endeavour.

Does it never occur to those who view art in this light that every toy, every piece of glass, china, and earthenware, every single article amidst the vast assemblage of "fancy goods" offered for sale at the British Industries Fair, possesses a form and colour that has been determined by some individual who either was, or was not, an artist, that its chance of ousting the productions of the alien enemy, not only from our own market but from the markets of the world, depends upon its form and colour being pleasing to the purchaser, that even to the most indifferent Philistine there is an attractiveness in beauty that is superior to the seduction of ugliness—the success of the gollywog notwithstanding? Art, in short, is not a luxury, but an asset of high commercial value in the struggle for industrial existence. When this is recognised the Board of Education will no longer be content to leave the organisation and administration of schools of art in a condition "capable of improvement."

NOTES AND COMMENTS.

THE probability of the early consummation of a National Federation of Building Trade Workers is an earnest of the consolidation of labour in this trade which has been in the air for some years past and is in keeping with the general trend of trade union organisation. There are at present over 60 separate trade unions and societies in the building trade, including five for bricklayers, two for carpenters and joiners, seven for glaziers, six for slaters and tilers, 11 for painters and decorators, three for plumbers, eight for plasterers, eight for masons, one for gasfitters, and 14 for labourers and general workers. Many of these societies are local, and in the normal course will sooner or later be absorbed in national organisations.

We are not at all disposed to view with apprehension, still less with alarm, the existence of a strong, consolidated National Federation of Workers in the Building Trade. In the first place, such an organisation may be expected to arrange the limitations of individual crafts, disputes as to which have been a frequent cause of strikes in the past. With the advance of new methods, new materials and new processes there are constantly arising occasions when the operatives may very readily be found in more than one sectional trade union, and it is far better for everyone concerned that the appropriation of new openings for work should be determined by a National Federation than by internecine contests between opposing claimants.

From the employers' point of view, it seems to us that negotiations on points of difference may be better conducted between representatives of National Federations, both of employers and employed, than with sectional interests and local associations, headed as these are likely to be by men of lesser calibre and limited outlook.

But above all, from the point of view of the national weal, National Federations promise greater success in the establishment of a National Alliance of Employers and Employed, which in the strenuous times that lie ahead of us, after the war, is a national necessity.

Substantial progress has been made by the National Alliance of Employers and Employed, formed at a conference of leading employers and representatives of Labour at the Hotel Cecil in December last. On the 9th inst. a meeting was held of the General Committee of the Alliance at its new offices, 64 Victoria Street, to receive a report of the work of the Executive Committee and to decide upon the best means to be taken for the consolidation and development of the movement on broad national lines.

The chairman in presenting the Executive Committee's report, said that in order that the Alliance should build up its work upon a firm foundation, conferences of representatives of employers and trade unionists had been held in three great industrial centres—Birmingham, Manchester, and Cardiff—followed by public meetings, before which the objects and intentions of the Alliance were placed and fully discussed by leaders on both sides. The results of the meetings and conferences in these great cities had been so encouraging that it was proposed to follow the same course in all important industrial centres throughout the country. At Birmingham, where two great meetings were held simultaneously, the Alliance was supported by Mr. Neville Chamberlain, who presided, Mr. John Hodge, Minister of Labour, and representatives from the Midland Employers' Association, the Brassworkers' Association, the Engineering Employers' Federation in Birmingham, and the local branch of the Amalgamated Society of Engineers, the Tin Plate Workers' Association, and the Birmingham Chamber of Commerce. Resolutions commending the proposals of the Alliance on demobilisation and reinstatement of the men of the Forces and munition workers in civil employment after the war, and appointing a committee of the Alliance for Birmingham, were carried with enthusiasm. At Manchester a large and very representative conference of employers and workmen was held at the Town Hall under the presidency of the Lord Mayor. To this conference he (the Chairman) had fully explained the aims of the Alliance and its proposals in regard to demobilisation. A resolution was passed unanimously in support of these aims and proposals, and it was resolved to invite the public to a mass meeting at the Free Trade Hall to consider the resolutions passed at the Conference and form a committee of the Alliance for Manchester. In Cardiff two weeks later an equally satisfactory decision was reached by a gathering of 2,500 people, addressed by the President of the Cardiff Shipowners' Federation, the President of the Coal Trimmers' Union, the President of the Tin Plate Industry, the Shipwrights, the Marine Engineers, and other powerful Unions in the district. A Committee of Employers and Employed was formed to take up the work of the Alliance.

On a somewhat different footing, but of high importance in our national organisation is the Federation of British Industries, the first general meeting of which was held on the 2nd inst. This Association is one of employers, and at the date of the meeting the membership had reached a total of two hundred and sixty-nine firms and individuals and fifty Associations. The aim of the

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organisers is to promote "United action by the manufacturers of the country through a national federation for the development of the industry of the country." Arrangements had been made with other bodies formed with objects not dissimilar to those of the Federation, to be affiliated with this Federation, notably the Employers' Parliamentary Association, by which the various district branches of that Association will become branches of the Federation. The British Manufacturers' Association, which is a body composed chiefly of smaller manufacturers, but with objects very similar to the Federation, have co-operated with the Federation by joining as an Association. The British Empire Producers' Association are also working to a certain extent in conjunction with the Federation, there being a joint committee of the two bodies, which meets at stated periods to discuss matters of mutual interest. Satisfactory arrangements have been made also with the Engineering Employers' Federation to work in co-operation.

The Federation has taken a part in the formation of the National Alliance, some of its members being the representative employers at the meeting last December. It also keeps in view the desirability of a British Trade Bank, to do for British trade what the Deutsche Bank has done for German.

The better utilisation of our existing canals demands a more effective prime-mover than a superannuated horse at the end of a tow-rope. The internal combustion engine is ready to hand, but with the normal type of propeller there would be a too serious attrition of the canal banks, whilst the drag of the usual shallow bottoms would greatly militate against efficiency. Hence there is at least a considerable amount of plausibility in the suggestion of Mr. A. D. Lang to adopt aerial propulsion.

In the Civil Service estimates relating to education, science, and art for the year ending March 31, 1918, provision is made for a grant in aid of scientific and industrial research of £1,000,000. An explanatory note states: This Grant in Aid will be paid to the account of the Imperial Trust for the encouragement of scientific and industrial research. The expenditure of the Trust will be audited by the Comptroller and Auditor-General, but any balance remaining on the account will not be surrendered at the close of the financial year. Grants will be made by the directions of a committee of the Privy Council over an agreed period to approved trade associations for research, to supplement the funds of the associations, and payments in respect of such grants will not be liable to surrender by the grantees at the end of the financial year.

The Highways Committee of the London County Council report:—In connection with the powers sought by the South Eastern and Chatham Railway Companies, for the reconstruction of Charing Cross railway bridge, a suggestion has been made that an additional staircase should be provided from Victoria-embankment to Charing-cross footbridge. There is a staircase at present on the north-west side, and the suggestion now made is that a similar staircase should be provided to give access to the footbridge from the footway on the river side of the embankment. Such a staircase would relieve pedestrians using the tramways from the danger of crossing the tramway tracks and the wide carriageway of the embankment on going to and from the existing staircase. The railway companies have intimated their willingness to provide such a staircase at their own expense, at the request and in accordance with plans to be approved by the Council, subject to a site for the staircase being provided by the public authority concerned. We are of opinion that it will be possible, without encroachment on the footway, to determine a suitable site for such a staircase. We recommend—That the Council is prepared to provide a site for a staircase giving access from the footway on the river side of the Victoria-embankment to Charing-cross footbridge.

In a lecture recently given at the Royal Institution on "Scientific Afforestation," Sir J. Stirling-Maxwell drew attention to the national necessity of a policy of afforestation. A danger period after the war was, he thought, inevitable, when we should be very vulnerable to any Power which could cut off overseas timber, but we must get our house in order as soon as we could. The least we could do, in the interests of national safety, was to increase the area of wood in the country—enough to make us independent of imports for at least three years in an emergency. These islands contained vast areas of rough pasture, little better than waste, and almost uninhabited, and, he asked, could no better use be made of them? Every European country had been faced by this problem and every country but this had already found the solution in afforestation. There were three matters, he concluded, which must be taken up in advance, and he trusted public opinion would support the Government in getting to work on them at once, even before the end of the war. The first was a survey to ascertain the best forest sites, the second the provision of plants in large quantities, and the third the training of forest officers—the last was the most important of all. We should not succeed in this difficult business unless it was placed in the hands of competent men.

At the last monthly meeting of the Society of Antiquaries of Scotland, Mr. James Curle, F.S.A.Scot., read a communication on "Terra Sigillata or Samian War: Its Production and Evolution." He stated that the whole production of this ware, so widespread throughout all the Roman provinces, might be traced back to the potteries of Arezzo, in Central Italy, and of Puteoli, on the Bay of Naples. The infiltration of Arretine ware to the provinces was illustrated by the finds from Haltern and Xanten dating from the Augustan period. The decorated vessels were of the Krater type, and were really cheap substitutes for the beautiful silver cups prized in the Roman world, of which admirable examples had been brought to light in the treasures of Hildesheim or Boscoreale. The sites successively occupied, as the Roman conquest flowed and ebbed across the Rhine, provided material from which it was possible to follow the evolution of provincial Roman pottery. The early carinated bowls, which succeeded the Krater type about the reign of Tiberius, were well illustrated in the collections at Mainz, Wiesbaden, and Xanten. Rottweil and Windisch gave good examples of the early Flavian period, while for the reign of Vespasian we had dated examples from Pompeii. In this country Newstead illustrated the decoration of Domitian's reign, and the gradual abandonment of the earlier wreaths and garlands in favour of figure-subjects and scenes from the circus, probably reflecting the movement of the frontier northwards, and the sporting proclivities of the military posts. By the end of the reign of Trajan the South Gaulish potteries appeared to have yielded their place to Lezoux, which all through the Antonine period carried on a widespread trade, especially in Western Gaul and in Britain. Towards the north its output was probably checked by the competition of the East Gaulish potteries, which sprang up along the river valleys that formed the highway to the Rhine. In the second century the centre of gravity was shifted towards the north, the legionary fortresses were becoming large centres of population; towns such as Trier and Cologne were increasing in importance, and here, as in modern times, trade followed the standards, and the potters moved north, taking with them the designs which had been invented in southern workshops. The earliest of the East Gaulish potters probably began operations in the reign of Domitian. Rheinzabern and Trier were the most flourishing seats of the industry under the Antonines, and they furnished evidence of the decline which led to its utter extinction.

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CASTILLION AISLE, WITH MONUMENT, SPEEN CHURCH.

ILLUSTRATIONS.

LORD WANDSWORTH INSTITUTION.

The lodge and gates are at the entrance to the estate of the Lord Wandsworth Trust at Long Sutton, in Hampshire. The Lord Wandsworth Trust was founded by the late Lord Wandsworth for education and instruction in scientific farming, and the very extensive farm buildings are now nearly completed.

The materials for the lodge and gateway are red brick, tiles, and Portland stone, and the buildings were carried out by Messrs. Holloway Bros. (London), Ltd., from designs by Mr. Reginald Blomfield, R.A., architect. The carving was executed by Mr. Aumonier, and the iron gates by Messrs. Elsley.

The house for the assistant manager of the Trust, also at Long Sutton, was also built by Messrs. Holloway Bros. from the designs of Mr. Reginald Blomfield, R.A., architect. The materials are red brick, tiles, and harled plaster.

THE CASTILLION MONUMENT AT SPEEN.

By John A. Randolph.

The monument to Sir John Baptist Castillion (or Castiglione, as it is more correctly spelled) in the old part of the church, which is situated in the beautiful little valley at Speen, near Newbury, at present stands right up against the east wall, end on, under the window. This old part of the church is locally known as the Castillion aisle.

Loose carved, broken stones are jumbled together between the foot of the monument and the wall, and apparently they formed a coat of arms and crest, corresponding to those at the other end of the monument, but now replaced by a modern flat, square stone in relief. The monument and effigy are rather damaged by time, and the left cheek of the face has initials cut on its lower half. There are traces of colouring on the armour and hair of darkish brown hue.

The inscription is painted in dark brown, old lettering, and the date, 1597, is in Arabic figures; an ornamental spray fills in the space after the date. The arms are carved in relief as to the charges, but not as to the fields. The actual size of the Dexter Canton, slightly visible, in all of the Castillions' arms, and showing traces of Or in some, is practically $\frac{1}{2}$-in. by $\frac{3}{4}$-in.

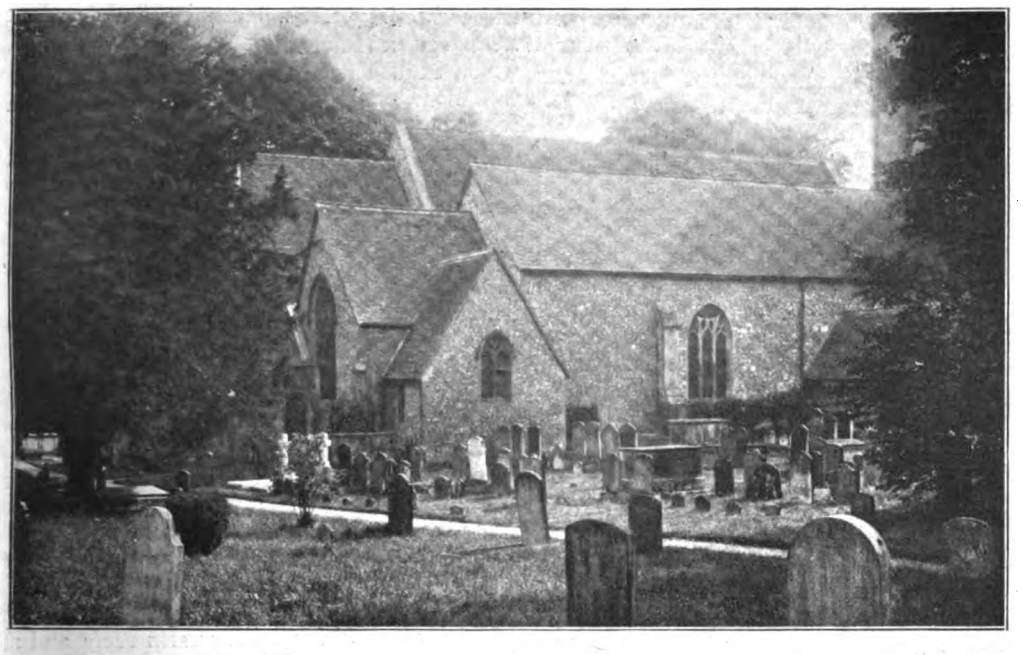
The lion's upper halves are Or; the lower parts were complete and are still, but Castles Argent had been superimposed. These castles are now broken off, leaving their shapes fairly distinct. There is no trace of a Canton Ermine Sinister on the quarterings of the Castillion arms, though Sir John received that "honourable augmentation" from Queen Elizabeth for services rendered to her by him.



CASTILLION MONUMENT, SPEEN CHURCH.

A Canton Ermine Dexter is in one of the shields, the sable markings on Argent being painted on and not in relief. The same remark applies to one of the quarterings on another of the shields.

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SPEEN CHURCH, SHOWING CASTILLION AISLE.

The arms are coloured throughout, except those at the head of the monument. The lettering of the motto on the scroll under the carved arms and crest—"Oublier ne Doy"—is in black. There is a clumsy cut at the top of the head right down to the slab on which the effigy lies.

There are various renderings of the lion and castle of the Castillion arms, even Sir John's sons and grandsons having adopted versions different to each other. Possibly this was done with a view to readily distinguishing them from one another, but we are given to understand that Sir John's, on the monument, and the Castillion ones and quarterings on the sides, all differ



CASTILLION MONUMENT, SPEEN CHURCH.

from the one borne by Sir John's grandfather, which were illustrated in a coloured supplement to the "Genealogist," a few years ago.

The arms of the Castillion-Randolph slab in Canterbury Cathedral show the castle clear of the lion's paws and in the Dexter Canton.

In some instances a triple castle (in one block) is given, while Pius VIII. (Francis-Xavier Castiglione) depicted his arms as a Lion Argent supporting a Castle Or, the colourings, therefore, reversed.

A John Baptist Castiglione was fifteenth Bishop of Bruges; his monument is in one of the side chapels off the cathedral choir ambulatory, but owing to the war, it is impossible to obtain at present the arms as depicted on the west wall of the cathedral.

With regard to the monument at Speen we understand that it is proposed, after the war, to move it forward and clear of the wall, to restore the shields correctly (the painting when last done being inaccurate in some particulars), and to repair the damage that it has suffered.

EXHIBITION OF WILLIAM DE MORGAN'S WORK.

In view of the recent death of William de Morgan, a small loan collection of his pottery and tilework has been arranged in Room 132 of the Victoria and Albert Museum. In the present difficulties of transport, no attempt has been made to form an exhaustive, or even a representative, series of these wares: a number of the choicest specimens have been, as a matter of fact, detained in Paris since the Arts and Crafts Exhibition of 1914; the exhibits are, therefore, mainly confined to loans from residents in London and the neighbourhood. Mr. Halsey Ricardo has kindly assisted in the organisation.

Both types of de Morgan's productions are represented, namely, the ruby-coloured and silver-yellow lustre ware, emulating the Italian maiolica of Maestro Giorgio of Gubbio, and that painted in rich harmonies of blue, green and purple, the so-called Persian colours, suggested in reality by the work of the old Damascus potters. The collection testifies to the late artist's wonderful fertility in the invention of designs, and proves that he fully understood the value of the art of the past as a stimulus to new creation, rather than a repertory of themes to be slavishly copied.

The opportunity has been taken to show in the same room a small series (also kindly lent) of the stoneware made at Southall by the three brothers Wallace, Walter, and Edwin Martin (of whom only the first-named, the eldest, survives). This belongs, of course, to a very different category of the potter's art. Here the inventiveness of the artist is displayed in a great variety of form, always, however, strictly within the natural limits of the craft, and in exquisite subtleties of proportion and of full though sombre colouring.

The exhibition is supplemented by a few examples of modern pottery and porcelain, both English and foreign, drawn from the permanent collections of the museum. Amongst these may be specially named specimens of

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French stoneware by Jean Carriés, Delaherche, Bigot, Lenoble and others, recently received by the museum as a joint gift from Prince Antoine Bibesco and Monsieur Paul Morand.

BAPAUME.

By John A. Randolph.

An illustrated contemporary recently gave a picture of Bapaume Town Hall, showing a short colonnade supporting Gothic arches, over the central two of which is a balcony. The long French windows of the floor above the arches and the projecting cornice and stone railing of closely-placed small shafts, are of early seventeenth century. There are no gables to the twin high roofs. The square tower has a parapet to match the one round the roofs, and an unfinished octagonal superstructure of some 20 feet in height hints at an intended bulbous spire; but a further picture of the building published in the same paper a few days later shows a spirelet to have been added since the first picture was taken. The spirelet is not in keeping with the rest, nor with the building.

The big church, whose tower has been halved, is now in ruins. It dated from 1570 to 1617. The public buildings are now stated to have been destroyed, as well as most of the town set alight.

There was a monument in the town celebrating the defeat of the Prussians there on January 3, 1871. They will doubtless have destroyed it and be using the metal.

THE PRIMARY PRODUCTS OF NEW ZEALAND

At a meeting of the Royal Colonial Institute at Caxton Hall on Tuesday, March 13, Mr. W. F. Massey, Prime Minister of New Zealand, delivered an exceptionally interesting address on the primary products of the Dominion. Sir Charles Lucas (Chairman of Council) presided, and was supported by Sir Joseph Ward (Minister of Finance for New Zealand), Sir Thomas Mackenzie (High Commissioner), Sir E. R. Fremantle, and others.

Mr. Massey said the prosperity of New Zealand, like that of the other oversea Dominions, depended upon its exports, nearly the whole of them coming from the soil. The exports from the Dominion last year amounted to £33,286,937, and so far as he was able to judge the amount would be exceeded during the present year. Approximately 80,000 New Zealanders had enlisted, and most of those had arrived on this side of the world. The Dominion realised that what the Empire required during the war were soldiers, and supplies of foodstuffs and materials for clothing, and the citizens would endeavour to do their duty in both respects. Since he had been in England it had been the business of the Minister of Finance, the High Commissioner for New Zealand and himself, to conduct some very important commercial transactions as between the Imperial Government and the Dominion producers, and he thought they had done so with a certain amount of success. The Imperial Government was taking the whole of their wool and cheese, so with hides and sheepskins and scheelite, which he was sorry to say was found in only limited quantities. Their total transactions with the Imperial Government for the present season would be very little short of £30,000,000, and he did not think anyone could say that the purchasers were not getting good value for their money. The New Zealand farmer found that fattening lambs or making butter or cheese had paid him better than growing wheat or oats. Therefore, only just about sufficient wheat was grown for the requirements of their own population, and it might be necessary for them to give a guarantee to their farmers with regard to price, so that importation of wheat might not be necessary in years to come. Another growing industry which in time to come was likely to attain considerable importance was fruit growing, especially apples. They had now as nearly as possible 50,000 acres planted in orchards, and he had no doubt that area would be added to during the forthcoming season. There were some products which were peculiar to the Dominion, of which they had practically a monopoly, such as Kauri gum and New Zealand flax (Phormium tenax). Kauri gum was a resin which exuded from the kauri tree when it was growing, the kauri itself being a species of pine and one of the best timber trees in the world, both for the quantity of timber obtainable from a full grown kauri tree and for the quality of the timber itself. The gum was seldom obtained direct from the tree as might be supposed, but was found in the soil at depths varying from 6 in. to 10 or 12 in. Part of what were now the Auckland provincial districts, and especially the long peninsula running from Auckland city to the North Cape, was at one time, and probably for countless ages, covered with kauri forests. The gum dropped to the ground after hardening on the trunk of the tree, and gradually became covered with soil, sometimes the result of floods, sometimes from volcanic eruptions or the formation of swamps, and there it remained until the enterprising European came along, and the product had been a very valuable one. Then there was New Zealand flax which grew all over the Dominion. He thought the greater part of their flax went to America and Canada. The Dominion was also very rich in minerals, very large quantities being won in the early days, both from quartz reefs and alluvial mining. At present gold mining was at a somewhat low ebb. The export of gold for last year was only a little over a million pounds, but he thought it was quite likely there was as much gold in the mining districts, perhaps more, than had yet been taken from them, though some of it might not be discovered for a long time to come. They had coal in abundance in both islands, some of it of very good quality. There were also very extensive deposits of iron ore, which had up to the present not been worked. There were also deposits of what was called iron sand on the west coast of the North island. These had been tested repeatedly, but though the quantity and quality of the iron were both said to be good, so far its working had not been a commercial success. Oil had been discovered, but up to the present not in sufficient quantity to be payable.

THE EFFECT ON THE EYE OF VARYING DEGREES OF BRIGHTNESS AND CONTRAST.*

By Dr. James Kerr (Public Health Department, London County Council).

Almost the first of the Society's proceedings in its initial session in 1909-1910 was to send out a set of questions dealing with the subject of glare. It was difficult to assign any kind of definite answer to many of these questions, but since then we have travelled far.

One may not hit a man on the comparatively insensitive skin without running the risk of legal or other penalties, but may with impunity, literally hit him in the eyes with a thousand candlepower beam. Short, however of this, the effects of glare are daily felt and far-reaching.

Lighting belongs to the amenities of life, and can be made an artistic pleasure if scientifically used, but can be the very reverse by becoming a vulgar intrusion or glaring disturbance.

Individuals differ much in their reactions. A healthy muscular labourer could endure hours of lighting conditions, without remark, which in a sensitive, less well nourished, or possibly chronically fatigued worker might be the cause of lasting distress or ill-health.

Fundamental Properties of the Eye.

The psychology of the subject has to be remembered The intellect builds up conceptions from past memories and the merest hints of present things, and is easily deceived by ocular tricks, not only form, space, colour, and distance but of meaning and interpretation.

* Abstract of a Paper presented at a meeting of the Illuminating Engineering Society, held in the House of the Royal Society of Arts, 18 John Street, Adelphi, W.

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These physical judgments too are remarkably at fault in unaided estimates of quantity or quality of lighting.

It had been known for a couple of generations that the eye had great power of adjustment in relation to light. A power called adaptation.

THE IMPORTANCE OF "ADAPTATION" IN THE EYE.

Adaptation has scarcely been sufficiently allowed for in practice and was not put forward clearly as the essential factor in differences of lighting as for instance natural and artificial, till the discussion on glare took place.

This adaptation of the eye for light depends on a mechanism in the retina. The retina in which the image of the visual field is formed consists of a sheet of nervous tissue, really an outgrowth of the brain. The light penetrates this to about the depth of a fifth of a millimetre to reach the sensitive layer of rods and cones, which layer is itself backed by the layer of black pigment cells. This last layer not only prevents irregular dispersion and reflection, but also acts as the chief machinery in the light adaptation of the eye.

The centring of the eyes on the object looked at is accomplished so automatically that anything looked at should have its image fall on the macula. This is scarcely recognisable till actually tested, but if a certain small spot say the dot of an "i" in a newspaper held at a foot distance is carefully fixed by one eye, and without moving the eye from this fixation point the number of letters clearly seen simultaneously is determined, it will be found that the area where vision is good enough to distinguish the forms of a newspaper type at a foot off, can be covered by a shilling.

In any exact vision then the eyes are constantly being centred on little spots like this, and the rest of the retina merely gives rough orientation.

This centring of the eyes means muscular adjustments so that the axes cut through the point looked at and is termed conveyance.

In reading the eyes go along a line in a series of little jumps fixing a series of such spots in succession though not necessarily in contact, but sufficient to give hints of words, which the brain can use, and if the light is poor, or the image confused, or the text strange, greater exactness of fixation is required, which is the beginning of strain, causing the sense of one variety of glare.

Nothing has been said yet about the action of the iris, which contracts on exposure to light, and also on efforts at accommodation. With rapid variations it may be a cause of strain, and possibly is a main agent in the irritating effects of flicker, but the range of protection gained from adaptation must be thousands of times greater than any more than momentary effect from the iris. Apart from flickering variation of light any strain or discomfort through pupillary contraction can probably be neglected.

EFFECT OF CHROMATIC ABERRATION.

For exact work the nearer the light to monochromatic the clearer the image. Some coloured glasses, amber, chlorophyl and so on which cut down the extremes of the spectrum, certainly add clearness in the effort to focus the distance as deer stalkers and others have found. Here, too, even in this chromatic accommodation we can find evidences of strain and glare.

There are three main ocular mechanisms, adaptation, convergence, and accommodation to consider in any lighting problems as regards the effect on the eye. These effects where (*a*) no immediate result is noticed may be grouped as strain, or (*b*) with immediate discomfort and inability to work, glare.

The eye usually works in quite an inexact way, just picking up rough hints. Any muscular actions are in the normal eye well within its powers. For instance, accommodation is comfortably used to about one-third of that possible, more can be used if necessary, but soon gives rise to fatigue and strain.

The eye is never at rest, it roams over an object, picking up hints, or runs along a line of print, stopping five or six times to take up the meaning, but never maintaining a steady fixed effort for long. Yet it can establish the effort to thousandths of a millimetre if necessary. If an object is so fixed that in an attempt to get a clear image every possible adjustment is made, the utmost reserves have to be called up for this steadiness. Too poor an image on the retina seems the chief cause. Either the light is absolutely too poor or the contrasts insufficient from retinal conditions, or from veiling through extraneous light, as from a shiny page.

During the period of growth nutrition is often seriously interfered with, and the part of myopia which is school or worked produced is essentially due to these causes. Our own committee suggested 2 foot candles on every desk as the minimum requirement, but 3 would not be an unsatisfactory average for school children.

Chronic conditions of poor light and black surfaces set up the curious functional disturbance which passes into actual disease of the nerve centres from long continued strain, in what is known as miners' nystagmus. Men who work in thick seams rarely get it, but when the eyes have to be strained in narrow seams it is common. Long before it is obvious the symptoms can be elicited by turning the eyes to look up and to one side, when the jerking tremor comes on.

THE ABSOLUTE GLARE LIMIT.

Turning now to another aspect of glare that from bright sources—with every eclipse of the sun cases are recorded where individuals looking at the partially eclipsed sun without protecting glasses, receive permanent damage. The sensitive layer or the nerve structures about it are burned out functionally at the macula, and a permanent black spot remains on the field of vision. This represents the extreme case of glare from high intrinsic brilliancy.

After any bright object is looked at the destruction of visual purple and accompanying changes are so rapid and intense that time is taken up in the restitution of the original condition, and during this time after images occur. They should normally disappear in the fraction of a second, but with intense light, or with poor circulation in the eyeball, or certain depressed conditions of nerve structures, which may be quite temporary as from a bilious attack or more lasting from neurasthenia, these after images may persist to such an extent that glaring effects result. In this connection fatigue and excess of tobacco are always to be thought of.

Mere glare effects from continued images of the source of light in the field of vision may be quite exhausting. The hall at the University of London is a particular example of an extremely offensive lighting.

Apparently the maximum brightness which the eye is prepared for through its long course of evolution is the brightest sky, apart from the actual image of the sun. That nature has prepared us for this may be judged from the pigmentation of the eyes of southern as compared with their slighter coloration in northern races. This amount is generally taken as 2.5 to 3 candles to the square inch, and some such amount has been suggested as the standard for any visible sources of lighting.

INDIRECT AND SEMI-INDIRECT LIGHTING.

Indirect lighting may accomplish this to perfection, but the semi-indirect can also be utilised if the actual incandescent source is used as a primary to light a sufficiently large diffusing shade which will act as a secondary source, which can be looked at steadily without hurt to the eye. Indirect lighting has its restfulness due to its diffuseness and absence of high intrinsic brilliancy on any surface. The eye is saved much fatigue by absence of violent contrasts, and by not having to pass from a comparatively dark surface to an incandescent one quite suddenly. On the other hand, as it is only through shadows that objects are seen, comparatively shadowless lighting whilst useful for general illumination apart from special

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eye work, or for examination of plain surfaces reading or writing, is not so useful where small objects or textural surfaces have to be examined. It would thus be good in a bank but bad in a school.

Direct lighting is the most economical method for handling objects or manufacturing processes, but there again if the light source is not kept out of the field of vision, or shaded down to the three candlepower per inch standard for any visible surface, it will cause strain and fatigue.

The Effect of Contrast.

The matter of contrast which comes in here is of very great importance not only in regard to light sources which may be the cause of after images and distribution of light, but also for such problems as the cinema screen. Excessive or defective contrast may be equally troublesome. The New York Committee who investigated glare a couple of years ago stated that vision was best with contrasts about 1 : 20, but was possible at 98 : 100, and could be done without discomfort up to 1 : 100. In sunlit scenes out of doors, excluding the sun itself, the contrasts rarely exceed 1 : 20. Indoors not over 1 : 200, although window frames against a bright sky may give a contrast 1 : 10,000. They thought it probable that the comfortable limiting ratio lies between 1 : 100 and 1 : 200, and preferably should be kept below 1 : 100.

This appears to me an important suggestion. It seems to take into account the admitted fact that a bright object is more distressing to the eye when presented with a dark background than if seen amidst relatively bright surrouundings owing to the adaptation of the eye; in full daylight with an eye adapted to relatively great brightness, even an incandescent filament may not appear very glaring, whereas in the dark a lighted match, held near the eyes, produces temporary dazzle.

The factor 1 : 100 appears to have been suggested mainly by practical experience.

Practical Illustrations of Effect of Contrast.

Even in cases where the surfaces are of moderate brightness and no extreme form of glare would be imagined to exist, an extreme contrast or a contrast operating in the wrong direction may be inconvenient. An instance in point appears to be furnished by the discussion on the lighting of rifle ranges before the Society in 1915. The view was generally expressed that to many people a brightly lighted white target with a dead black background gave an acuteness of vision inferior to that obtained when the surroundings were illuminated with subdued illumination. This appears to be a case where a fixed ratio of brightness between illuminated objects and surroundings would be desirable. Similar effects are met with in stage lighting, and in the cinematograph theatre, to which reference will be made shortly. It seems questionable whether the practice of keeping the auditorium of a theatre in complete darkness is desirable. In some cases the continued fixation of a brightly lighted spot on the stage, with the rest of the field of view in complete darkness, entails a strain on the eye.

The fixing of a desirable limit to contrast has also a bearing on local illumination. It is hardly possible to lay down the law that either "local" or "general" lighting is invariably best, but the extreme contrast present when a workman is engaged on fine work, and using a powerful shaded light operating over a small area with the surroundings in complete darkness is undoubtedly trying. Here, again, a limit to the contrast might well be prescribed.

This raises one other question. Should there be also a limit to uniformity? The view is often expressed that completely uniform lighting, were it attainable, would also be trying to the eyes. Is extreme monotony of brightness also objectionable? This is a matter on which very little physiological evidence is available, but there seems ground for the belief that the best conditions involve an illumination on the object viewed greater than that given to the surroundings. The Committee of the Society on school lighting recommended an illumination of the blackboard in excess of that provided generally in the room. It is, at all events, generally agreed that when the contrast is reversed, i.e. when the illumination on the work or object viewed is actually less than the general illumination the visual effect is prejudiced.

Illumination for Distant Objects.

It may be added in passing that while the illumination needed for close work is fairly well understood, the conditions for relatively distant vision have been less studied. For example, there is general agreement that for reading good type on white paper 2-3 foot candles is the minimum desirable. But the corresponding illumination required for lighting targets, blackboards, and illuminated signs and notices to be viewed from a distance has been little studied. Assuming that the angle subtended by the detail at the eye, and the contrast between this detail and the background are the same, would the illumination necessary be different according as the object is viewed at a distance of, say, 1, 5, 20 and 100 feet? Probably it would be considerably greater.

Glare from "Successive Contrast" and Flicker.

The effects of glare discussed above are due to simultaneous contrast. A corresponding effect occurs when the eye sees surfaces of vastly differing brightness in succession. For example, when we pass from a brightly lighted room into the darkness outside, the eye being adapted to the brilliancy inside can see little until it has become adjusted to the lower brightness. The present darkening of London offers many examples of this effect. The alternate patches of brightness under lamps and darkness between them are doubtless distracting to drivers and pedestrians whose eyes are required to adjust themselves to the altered conditions as they pass from one region to another. This is an argument in favour of more uniform illumination.

An extreme instance of such an effect is met with in the case of a flickering, unsteady illumination which is notoriously trying to the eye. Flicker is rather a mysterious subject, which would require separate treatment. It should not, however, be impossible to specify the steadiness of sources of light and to state approximately the amount of flicker which is distinctly perceptible to the eye and therefore objectionable. Such fluctuations may occur either on a fluctuating gas supply or an electric lamp run off an alternating supply of low frequency.

As is well known inconvenient effects may be produced by moving objects illuminated by alternating arcs. At a certain period of revolution rotating machinery may even appear stationary, an obviously dangerous effect. This method of lighting should not be employed for the illumination of moving objects. The corresponding effect of electric incandescent lamps on alternating supply is very much less, but might in some circumstances be appreciable.

In some circumstances peculiar stroboscopic effects may occur even when the source of light is steady. In a cinema picture, for example, one may notice a rapidly travelling motor-car whose wheels are either at rest or moving backward. This is due to the time interval of rotation between two spokes being a multiple of or slightly less than the interval between two pictures. Possibly it would be cured by putting a prominent patch of whitewash on one spoke.

Conditions in Cinematograph Theatres.

Flicker at once calls up the much debated question of cinematograph displays. In itself this is a harmless form of amusement, and for educational purposes has undoubtedly great possibilities. In the case of grown up people, whose attendance is entirely a matter of choice, any possible prejudicial effect is of less consequence than in the case of children, whose eyes and minds and physique are in the process of development. If cinema displays should become a regular feature in schools, and attendance obligatory, it is evident that all possible care

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should be taken to avoid any possible injury, while even in the case of ordinary entertainments there is perhaps a danger that too frequent indulgence in the pastime might have bad results.

In the first place it should be observed that the constant fixed direction of the eyes in a dark adapted condition is unusual. With the eyes in such a state one looks at a distant landscape without trouble, but fixing on a relatively near object may soon give rise to strain. One can test this very easily by watching an electrically controlled clock outside a building for the half minute jerk forward; the effect on the eyes soon becomes appreciable. The question of the length of such entertainments for children therefore deserves attention, and the practice of remaining in the hall and seeing the same series of films over and over again should not be allowed. Even for grown up people the duration of such entertainments is often too long. If the majority of the spectators have normal vision they should see clearly at any distance over twenty feet without effort. Any shorter distance of the screen means effort of both accommodation and conveyance, and in the case of children, owing to their short undeveloped eyeballs, that effort is much greater than in adults.

Where there is any indistinctness of the picture the spectator may make efforts to see more clearly, and if less than twenty feet from the screen. These efforts are useless, as all images, whether apparently near or far, are on the screen in the one plane.

The best position visually would be from thirty to fifty feet from the screen and on a level with its centre. Raising of the eyes above the horizontal should be eliminated so far as is possible. The strain on the superior rectus muscle which raises the eyeballs very easily causes headaches, as in the notorious academy headache. The screen therefore should be as low as possible.

Where the screen is much foreshortened as when seen from the sides of the hall in front, the efforts to correct the distorted image are very fatiguing, and children should be excluded from such seats.

On the question of lighting there is room for experiment, but we are in a position to make more definite suggestions:—

(1) *Illumination of the Screen.*—The illumination of the screen will be found to vary from 0.5 foot candles to 1 foot candle or more. It has been suggested that the standard value should be fixed at a minimum of 1 foot candle. The illumination of screens is easily tested, and it should not be difficult to arrive at a reasonable value by observations in typical halls.

(2) *Material for the Screen.*—This is essentially a matter for experts. I believe it is generally agreed that a good matt-white screen gives the best effects. Screens composed of aluminium powder have been introduced on account of the greater brilliancy attainable, and consequent economy in the consumption of light. Such screens, it is said, are apt to give rise to inequality of brightness according to the direction from which they are viewed, and to inconvenient moving shadows. As they are still in the experimental stage it would perhaps be better not to adopt them for entertainments for children.

(3) *Illumination in the Theatre.*—Extreme contrast between the brightness of the screen and of the general surroundings is objectionable. The ratio of 1:100 already suggested would imply brightness of surroundings of, say, not less than 0.01—0.02 foot candles. In practice this value can easily be attained. A certain amount of illumination on the seats has also been considered desirable to enable people to find their places. A value of 0.2 to 0.5 foot candles has been suggested for this purpose. By careful design it could probably be arranged that the provision of this extra illumination would not materially affect the brightness of the screen, and would therefore not impair the image.

Any lights or illuminated notices indicating exits, &c., should be carefully screened so that their brightness does not exceed three candlepower per square inch. This is ample for the purpose in view, but not high enough to cause glare.

The illumination in the theatre should be controlled by dimmers so that it can be gradually diminished before films are shown, thus avoiding the painful effect on the eyes of suddenly switching on and off the full illumination.

The illumination in corridors should have a value intermediate between that outside and in the theatre. An illumination on the floor of 0.5 foot candles would be sufficient. Here, again, all lights should be shaded.

PRELIMINARY TRAINING FOR PROSPECTIVE OFFICERS OF THE AIR SERVICES.

WITH a view to affording to young men below the age of eighteen a preliminary training which would give them some sound technical qualification when applying for commissions in the Air Services, either as a cadet or not, the Aeronautical Institute has decided to follow, in this respect, the example already set by the French educational authorities who have recently started preliminary aeronautical courses at the Sorbonne under M. Marchis, the eminent Professor of Aviation of the University of Paris and a member of the Aeronautical Institute's Advisory Council.

The Preliminary course of the Aeronautical Institute will be very practical in character and will cover a working knowledge of aviation motors, of the function and construction of the various parts of the aeroplane concerned with its sustentation, propulsion and evolution both in flight and on the ground.

Those following the course, which will last about three months, and which will entail a full-day attendance five days a week, will be afforded workshop and drawing-office practice as well as a sound practical knowledge of the materials used in aircraft construction, and particular attention will be paid to points connected with the upkeep of machines.

The theoretical portion of the course, which, as far as possible, will be illustrated by actual full-sized aeroplanes or parts of them, will entail no more mathematical knowledge than is usually expected from a youth of seventeen or eighteen.

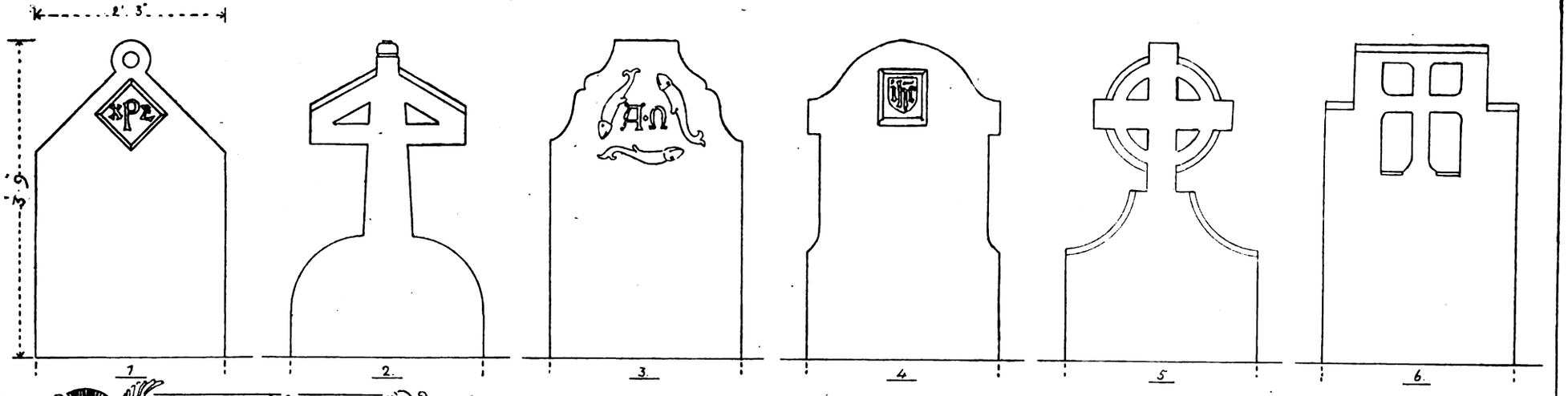
The Institute's course, exactly like the Sorbonne's, will be independent of any other organisation, whether governmental or not, and again like the latter, will not be a guarantee that any of its students, after going through the course satisfactorily, will necessarily be granted commissions in the Air Services, for the granting of such commissions must, of course, only rest with the military and naval authorities who have to consider the qualifications of applicants as a whole. But it is obvious that, other things being equal, applicants for commissions in the Air Services must, if they possess a sound preliminary knowledge of aircraft, stand a far better chance than those having no such training.

The Institute hopes that by providing the preliminary knowledge outlined above it will be able to help the Flying Services either to train their officers much more rapidly than at present or, if their period of official training is not reduced, to still further increase their degree of efficiency.

Full particulars of the course can be obtained from the Hon. Secretary of the Aeronautical Institute, 3 Arlington Street, London, S.W. 1.

THE annual report of the Sussex Archæological Society shows that the membership on January 1 last was 834, against 869 a year earlier. There were 5,673 visitors to the Lewes Castle and Museum, the receipts from this source being £172 4*s.* 5*d.* Subscriptions amounted to £386 3*s.*, and the total receipts to £573 8*s.* 6*d.* The expenditure was £456 9*s.* 4*d.*, the principal items being £125 10*s.* 6*d.*, balance of cost of printing of the annual volume, £91 8*s.* 6*d.*, wages to caretakers, and £45 clerk's salary. Starting the year with balances in hand of £19 12*s.* 2*d.*, the Association finished with balances of £111 11*s.* 4*d.* and £25 on deposit at the bank.

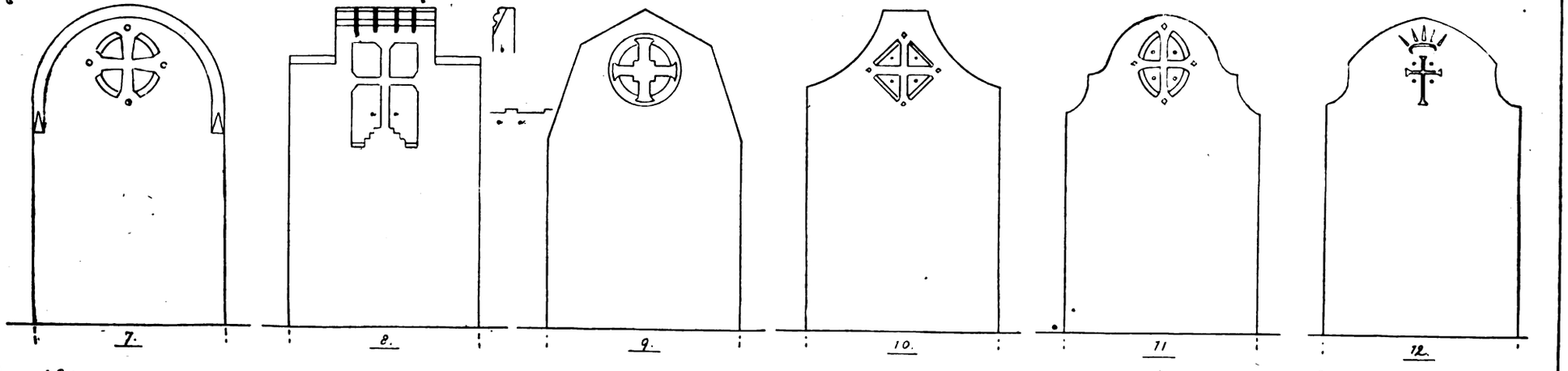
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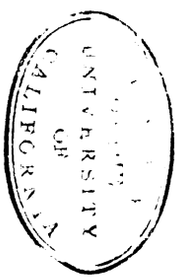
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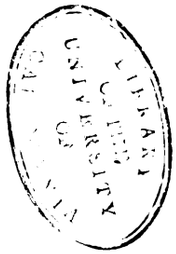


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THE NEW ELECTRIC POWER-STATION AT BIRCHILLS, WALSALL.*

By ERNEST MATTHEW LACEY, M.Inst.C.E.

THE early history of the electricity undertaking of the Walsall Corporation and the original system of generation and transmission are briefly described; also the steps taken by the Corporation since the year 1913 to provide for an efficient supply of electricity in the Walsall area.

The conditions determining the size and site of the new power-station are stated, and the question of possible land subsidence owing to old colliery-workings is dealt with.

Reference is made to the controversies regarding the economy which arises in the production and distribution of electricity by the concentration of plant in power-stations of large capacity, and the Author expresses his views as to the ultimate limit beyond which no appreciable advantages would accrue by reason of such concentration.

It is claimed that the Walsall power-station is by far the lowest in cost per kilowatt of any yet erected in this country, due to special features in the design and type of plant installed, these special features consisting more particularly in the arrangement of the coal-handling and boiler-house plant.

The general arrangement of the coal-handling plant is fully described, the main object in the design being to obtain adequate coal-storage and at the same time to save the heavy expenditure on constructional work necessary to provide for overhead coal-storage bunkers of large capacity.

The boiler-house is designed for six self-contained units, each unit consisting of a water-tube boiler with integral super-heater, a superimposed economiser, ejector induced draught plant, a steel "Venturi" type chimney, and a mechanical chain-grate stoker. Each unit is designed for a high duty evaporation of 30,000 lbs. of steam per hour from water entering the economiser at a temperature of 100° Fahr. In Appendix I particulars are given of the normal and high duty tests of a boiler unit of the type adopted, the results showing an overall efficiency of over 88 per cent. based on the net calorific value of the coal.

It is claimed that the Walsall power-station is one of the first examples erected in this country for the accommodation of the special type of boiler unit described, and the more important features and advantages of the design are referred to.

A high concentration of steam-raising plant in modern power-houses is advocated, and the important bearing which it has upon the general and structural design of modern power-houses and its advantages are fully dealt with, as is also the design of boiler necessary to obtain such high concentration.

The engine-house is designed to accommodate three 4,000-kilowatt turbine-driven alternators, of which two have been erected. The turbines are of the compound horizontal impulse type, and work with steam at a pressure of 180 lbs. per square inch and a temperature ranging from saturation to 620° F. at the stop-valve, the normal speed being 3,000 revolutions per minute. The construction of the turbines is described and attention is drawn to special features, more particularly to the provision of directing boxes for the control of the various oil- and water-pumps which, although the rule for marine work, have been but little used on land.

The condensers are of the surface type, with rotary kinetic air-pumps and centrifugal water-circulating pumps driven by electric motors. The arrangement is fully described, as also are the various appliances for measuring and recording the steam-consumption of the turbines.

The alternators are of the revolving-field type and generate three-phase alternating current at a pressure of 6,600 volts between phases, with a frequency of 50 cycles per minute, the full-load output of each alternator being 5,000 kilo-volt-amperes. The more important features in the construction of the alternators are described, as also is the system of ventilation which has been applied and which it is claimed has special advantages.

The extra-high-tension switchgear is fully described, and the special features in its design and construction are referred to.

The actual cost of the works under the various contracts is set forth, the figures showing that the cost of a 12,000-kilowatt station of the design described, at 1914 prices, is approximately £5 3*s*. per kilo-volt-ampere of plant installed, or £6 12*s*. per kilowatt (cos $\phi = 0.8$).

It is claimed that the economy of the Walsall design represents not less than 30 to 40 per cent., and that not only has this economy been obtained without any sacrifice of efficiency for the sake of cheapness, but this type of station is in fact far more economical in operation than stations of more usual design.

The cost of producing electricity at a station of this type is fully dealt with, and curves showing these costs and the effect of the load-factor thereon have been prepared. An Appendix shows in detail the total annual costs of production and costs per kilowatt-hour sent out with a station load-factor of 30 per cent.

The system of transmission and distribution to consumers is briefly referred to.

* Abstract of a Paper read at the ordinary meeting of the Institution of Civil Engineers on March 20.

Correspondence.

[The Editor will not be responsible for the opinions expressed by Correspondents.]

Architects and National Service.

SIR,—At a recent representative deputation of architects, Mr. N. Chamberlain said that he would welcome advice as to the most suitable employment for architects in the National Service scheme, under which he asked all professional men to enrol, stating that he hoped to deal with such offers on a suitable basis. The deputation has resulted in the formation of an Advisory Council which has decided to ask all architects in a position to sign the form to send it *in duplicate* to the nearest architectural society allied to the Royal Institute of British Architects, or to the latter in the case of practitioners in London and the home districts, so that the whole of these forms may be collected and sent to the National Service headquarters in the form of a united offer from the whole profession.

It is hoped that a prompt and extensive response may result from this appeal.—Yours, &c.,

ERNEST NEWTON, P.R.I.B.A.,
Chairman, Architects' War Committee.
ASTON WEBB,
Chairman of the Advisory Council.

Rugby War Memorial.

SIR,—It is thought that the time has arrived for the creation of a Rugby War Memorial Fund, having for its objects:

The erection of a permanent memorial at Rugby of Rugbeians who have fallen in the war, and

Provision for enabling the sons of Rugbeians who have fallen or been incapacitated in the war to be educated at Rugby.

While it is thus proposed that the first object shall be the erection of a worthy memorial at Rugby, it is intended that the bulk of the fund shall be devoted to the second object. It is hoped that at least £50,000 will be contributed. A meeting for the consideration of the scheme will, by the kind permission of the Court of Assistants, be held in the hall of the Drapers' Company,

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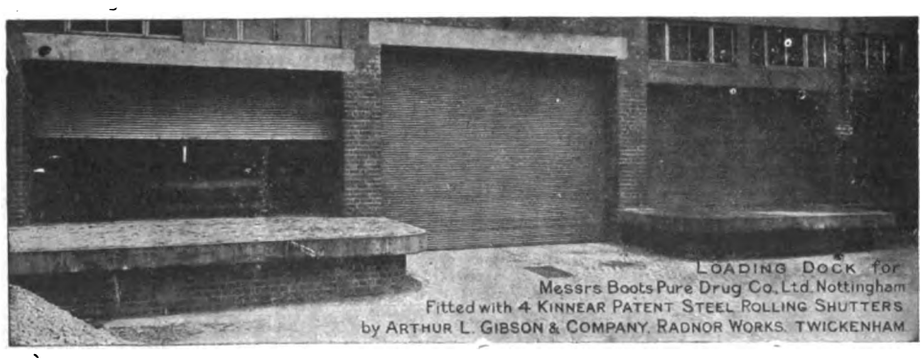
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Thurgnorton Street, at five o'clock on Wednesday, April 4, at which Lord Kilbracken, G.C.B., will preside. Old Rugbeians, the parents of past and present Rugbeians, and all interested in the school are invited to attend. In the meantime, subscriptions or offers of subscriptions will be gladly received by the honorary treasurer, Mr. A. E. Dorkin, Hillmorton Road, Rugby. Other communications may be sent to Mr. L. Eaton Smith, the honorary secretary of the Old Rugbeian Society, at 111-13 Queen Victoria Street, E.C.—Yours, &c.,

KILBRACKEN. AUSTEN CHAMBERLAIN.
SANDHURST. EDWARD SATTERTHWAITE.
A. A. DAVID.

March 19.

BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders, the address is, as a rule, local.)

ENGLAND.

BEDFORDSHIRE.

Luton.—Factory, Biscot Road: extension for Commercial Cars, Ltd.

BUCKINGHAMSHIRE.

Penn.—House for Mr. Perfect.

DERBYSHIRE.

Ilkeston.—Two houses, Millfield Road, for Mr. J. Reeve.

DURHAM.

Darlington.—Hospital: additional 100 (odd) beds. Messrs. Clark & Moscrop, FF.R.I.B.A., architects, Feethams.

Sunderland.—Shipyard, Southwick-on-Wear: additional buildings for Messrs. Swan, Hunter & Richardson.

ESSEX.

West Ham.—Business premises, Marshgate Lane, for Messrs. Howard & Sons.

Cooperage, Warton Road, for Messrs. Jenson & Nicholson.

Workshops, Magnet Wharf, Cook's Road, Bow Bridge, for the London and Scottish Engineering Co.

GLOUCESTERSHIRE.

Cheltenham.—Parish church, Charlton Kings: boys' vestry.

HEREFORDSHIRE.

Hereford.—Laundry, Ledbury Road: additions. Messrs. W. W. Robinson & Son, architects, 10 King Street.

KENT.

Maidstone.—Proposed smallpox hospital (£2,500). Council surveyor.

LANCASHIRE.

Blackpool.—Two houses, St. Helier's Road. Mr. E. Saville, builder, Saville Road.

Engine house, Charnley Road, for the Blackpool Co-operative Society.

Bolton.—Business premises, 145 Mayor Street: additions for Mr. C. H. Briggs.

Mills, Flash Street: addition for Messrs. Ormrod, Hardcastle & Co., Ltd.

Cotton mill, Weston Street: addition for Messrs. Ainsworth Brothers.

Offices, Crook Street, for Messrs. Hicks, Hargreaves & Co., Ltd.

Nos. 5-7 Knowsley Street: addition for Mrs. Redhead.

Hesket Lane.—House for Mr. W. Wignell.

Leigh.—Workhouse: proposed alterations and extensions.

Manchester.—Electric sub-station, Oldham Road.

New Moston Heath.

Oldham.—"The Knoll," Windsor Road: conversion into a military hospital.

Westhulme Hospital: proposed extensions.

LEICESTERSHIRE.

Loughborough.—No. 1 Burton Street: alterations for Miss D. Mounteney.

Petrol store, Bishop Street, for the Shell Marketing Co.

NORTHUMBERLAND.

Newsham.—Premises for the Presbyterian Mission.

STAFFORDSHIRE

Walsall.—Warehouse, Corporation Street, for Messrs. Platt & Co.

SURREY.

Woking.—Factory: addition for Messrs. Martinsyde.

"Rossmore," The Ridgeway: motor garage for Mr. W. G. Tarrant.

SUSSEX.

Eastbourne.—No. 57 Upperton Gardens: alterations. Mr. P. D. Stonham, architect, 58 Grove Road.

No. 24 Royal Parade: alteration. Mr. A. Ford, architect, 7 Gildredge Road. Mr. A. Rowsell, builder.

Nos. 27-28 Commercial Road: alterations. Mr. S. G. Scales, architect, 7 Bolton Road. Messrs. G. Bainbridge & Son, contractors, 77 Terminus Road.

No. 114b Gildredge Road: alterations. Mr. P. D. Stonham, architect. Messrs. Bainbridge & Son, contractors (addresses as above).

No. 22 Seaside Road: alterations. Messrs. Bainbridge & Son, builders (as above).

"Mill Field," Selwyn Road: additions. Mr. Stonham, architect (as above); also

No. 58 Terminus Road: alterations.

"Kenilworth Court," Wilmington Square: additions. Messrs. Bainbridge & Son, builders (as above).

Hove.—No. 44 Ventnor Villas: conversion into flats. Mr. A. H. Lainson, architect, 59 Ship Street, Brighton.

YORKSHIRE.

Hull.—The "New Inn," Stoneferry: rebuilding for Messrs. Moors & Robson's Breweries, Ltd.

Leeds.—Particular Baptist Church and Schools, Mount Preston.

Liversedge.—Warehouse, Littletown. Messrs. Howorth & Howorth, architects, Old Bank Chambers, Cleckheaton.

Outwood.—Engine house and stables, Coach Road, for the Stanley U.D.C.

Rawmarsh.—Works: extensions for the Parkgate Co.

Wakefield.—Garage, Westgate Common, for Messrs. Bradley & Craven.

Steelworks: extensions for Messrs. G. Cradock & Co., Ltd.

WALES.

Milford Haven.—Bakery for the Industrial Society.

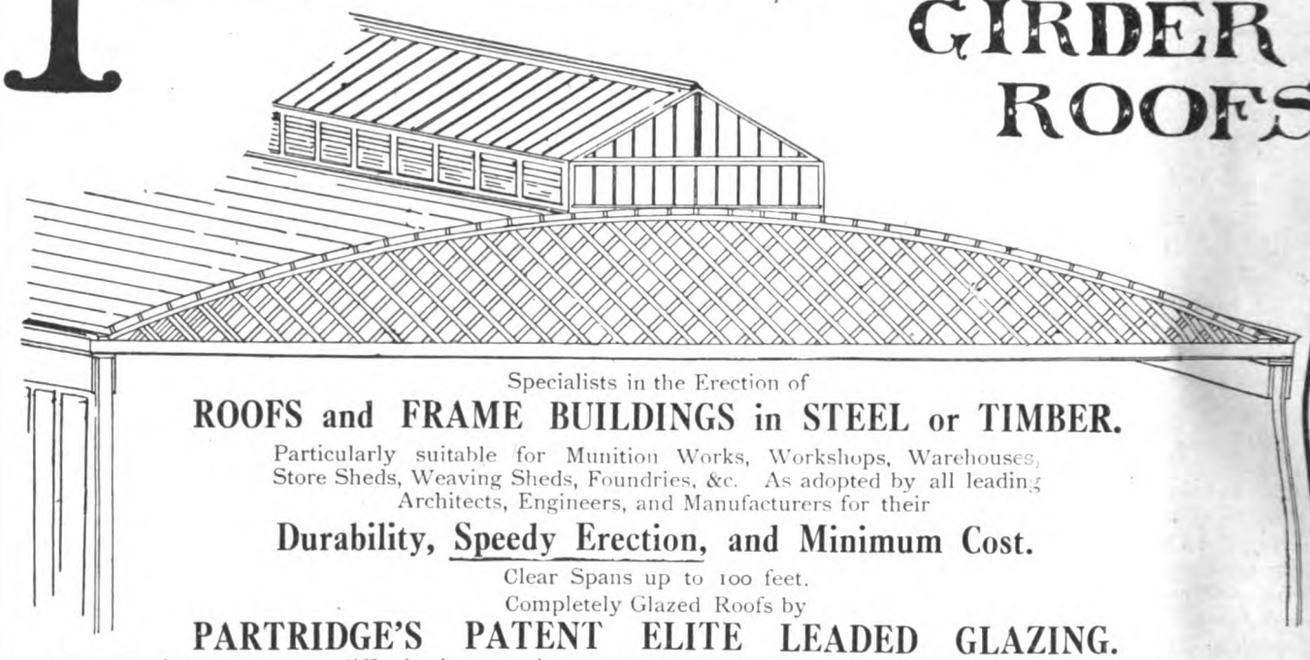
SCOTLAND.

Coatbridge.—Shop premises: alterations for Scottish Iron and Steel Co., Ltd. Mr. M. Thomson, architect.

To the numismatic world the recent death of Sir George Chetwynd comes as a reminder that his grandfather, the second baronet, was a great authority on coinage, and possessed a collection of coins, medals, and tokens which created a stir when sold at Christie's in 1872. Sir George's grandfather was one of the first numismatists to begin an orderly collection of token coins which were debarred from currency just 100 years ago owing to the public scandals which had occurred from the bankruptcy of and repudiation by many issuers. The declared illegality of the token currency did not prevent a rich lover of coins from minting presentation tokens for private use, and there are examples of halfpence and pennies known which Sir George's grandfather had struck by the well-known die-sinker Halliday at Grendon Hall in 1842, and circulated among his coin-loving friends.

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THE ARCHITECT

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FORTHCOMING EVENTS.

Saturday, March 31.

Edinburgh Architectural Association: Visit to Brunstone House, Joppa.

Wednesday, April 4.

Carpenters' Hall: Lecture entitled "British Forestry—Past and Future," by Professor Wm. Somerville, D.Sc., M.A., F.L.S., at 7.15 P.M.

Royal Archæological Institute: "Notes on some Family Relics of the Jacobite Rebellion, 1745," by Mr. V. B. Crowther Beynon, M.A. Paper entitled "Some English Mediæval Embattled Alabasters," by Mr. Philip Nelson, M.D., F.S.A., at 4.30 P.M.

Wednesday, April 11.

Edinburgh Architectural Association: Annual Business Meeting.

Monday, April 16.

Surveyors' Institution: Paper entitled "The Effect of War Conditions on Urban Property," by Mr. J. G. Head, F.S.I., at 5 P.M.

Wednesday, April 18.

Royal Institute of British Architects: Adjourned Informal Conference on "Architecture and Civilisation," at 3.30 P.M.

Thursday, April 19.

Royal Society of Arts, Indian Section: Paper entitled "The Industrial and Economic Development of Indian Forest Products," by Mr. R. S. Pearson, I.F.S., F.L.S., Imperial Forest Economist, at 4.30 P.M.

Wednesday, April 25.

Manchester Society of Architects: Annual General Meeting at the Society's Rooms, at 6.30 P.M.

FURTHER EDUCATION.—II.

THERE are four chief administrative changes proposed by the draft Revised Regulations of the Board of Education. The first of these is that the Local Education Authority will be required to take a substantial amount of responsibility for the whole of the Continuation Courses given in its area, receiving all the grant in respect of this work and aiding centres which it does not itself maintain, after considering the value and the cost of work done in them, either out of the grant alone, or out of grant and other funds at its disposal.

The second change is in the manner of calculating the Continuation Centre Grant. Under the traditional Regulations, the grants are calculated and paid piecemeal, school by school and subject by subject. Under the new draft Regulations a single inclusive grant will be calculated on the whole of the continuation work of an area and paid to the Local Education Authority. It will be understood that under this system the Board will not be in a position to declare what is the grant paid for or "earned by" any particular class; for the rate of grant will no longer be assessed separately for that class, but the class will merely form one element in the whole provision of the area, for which a single collective rate of grant will be determined.

The third change is in the basis of the Continuation Centre Grant. Formerly the unit for the Evening School Grant was the "student-hour," i.e. the attendance of one student for one hour. Under the new draft Regulations the unit will be the "teacher-hour"—i.e. one hour's instruction given by a teacher. It follows that for the purposes of the new grant basis the sizes of classes will be immaterial, and that a class of twenty students will contribute as large a quorum to the grant basis as a class of thirty. This recognises cost (which does not always vary with numbers) as an element in the calculation of grant. The Board reserve discretion to deal with any possible abuse of the new method in the provision of classes for an unreasonably small number of bona-fide Continuation Course students.

It will be seen that the second and third changes are to a large extent interdependent and operative in the same direction. Much harm has been done in the past to the cause of evening education by the accentuation of an idea that each individual class ought to pay its own way by earning a sufficient grant. Hence many classes have been started and abandoned at any early stage for want of sufficient students when perseverance would possibly have led to a subsequent fuller appreciation and success. Students who have been enrolled in an early abandoned class lose enthusiasm and refrain from the possibility of a repetition of the experience.

The fourth change is in the treatment of Local Colleges. Until recently these institutions have been aided piecemeal, receiving separate grants for Technical Institution Courses, Day Technical Classes, Junior Technical Schools, Art Classes, and Evening Classes, although each of these formed only a part—and not always an educationally distinct part—of the whole work of the institution. Under the new draft Regulations, the whole of this work will be treated together, and a single inclusive or "block" grant in respect of it paid to the College. The only exception to this principle is that, where a School of Art forms a department of a Local College, a separate inclusive grant will continue to be paid in respect thereof.

The types of institutions covered by the new draft Regulations with which we are mostly concerned are those included under the terms "Local and Central Colleges" and "Schools of Art." The former term covers what are ordinarily called Technical Institutes, Technical Colleges, Technical Schools, Polytechnics, &c.—i.e. broadly, the larger and more stable institutions which educate older students and provide more advanced instruction than Continuation Centres, which term covers all other evening schools. The distinction between a Local College and a Central College is that the former fulfils a definite function in relation to the educational needs of its particular area, whilst the latter designation applies to certain institutions which are non-local in character, and cannot be said to serve one area rather than another. Some of these are highly specialised institutions (sometimes called mono-technics) dealing with particular industries, and concentrating in themselves all the higher work of this type in a large part of the country, or in the whole country. Others, again, are residential institutions drawing their students from all parts of the country for the purpose of advanced study in humane subjects.

A College therefore providing a full-time course which does not fulfil a definite function in relation to the educational needs of any particular area, but in other respects satisfies the requirements of the Board in regard to Local Colleges, so far as applicable, may be recognised by the Board and aided as a Central College. As a rule a Central College will be expected to provide a full-time course of not less than two years' duration.

Under the new draft Regulations aid may be given in respect of a University, a College forming a constituent

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part of a University or University College, but not for instruction which comes within the purview of the Treasury grant payable to University Colleges, or of the Board's Statement of Grants in aid of technological or professional work in Universities.

In respect of Schools of Art it is laid down that an institution giving organised courses of instruction of higher than junior standard in one or more branches of art may be recognised and, if efficient, aided with grant by the Board as a School of Art.

Under one or other of these categories it appears, therefore, that institutions for specialised instruction in architecture or in building may find a place, and hence come within the scope of the new draft Regulations.

A Local College and, à fortiori, a Central College or School of Art, need not necessarily be under the control of a Local Education Authority, but definite arrangements must be made for the conduct of the College determining the constitution and functions of any governing or advisory body established for the College or for any department or course thereof, and the functions of the principal of the College and the heads of departments, both as regards responsibility for general control and as regards immediate responsibility for the details of organisation, discipline, and teaching.

The methods of instruction contemplated by the Regulations specify that the instruction in any course may be made up, according to the nature of the subject or subjects, of lectures, class work, tutorial work, or (if properly supervised) of preparation or individual work of a practical character, and should as a rule be supplemented by home-work exercises. Instruction in a subject given by means of lectures only will not as a rule be approved, and practical work will as a rule be required as a part of all instruction in scientific, technological, domestic, and artistic subjects.

Teachers must be paid by fixed salaries or at fixed rates in Colleges and Schools of Art, and they may not undertake any other duties which, in the opinion of the responsible body or of the Board, would interfere with the efficient discharge of their duties in the College. They should not be employed in actual teaching for more than two morning, afternoon, or evening meetings in any one day, or for more than ten meetings in any week.

The plans of the site and building of any new premises specially provided for the purposes of work under these Regulations or of any enlargements or alterations of existing premises made for such purposes must be submitted in advance for the Board's approval. The details of any proposals for installation of equipment must, if required, be similarly submitted.

NOTES AND COMMENTS.

The approval by the War Cabinet of the scheme put forward by Sir A. Mond, M.P., the First Commissioner of Works, for establishing a National War Museum and the appointment of a committee to carry out the project must lead to the erection of a very considerable building in view of the scope proposed for the museum. The object is stated to be to collect and preserve for public inspection objects illustrating the British share in the war. The exhibits will comprise examples of the arms and other war materials used by the British naval and military forces, trophies captured from the enemy, souvenirs found on battlefields, inventions connected with munition-making at home, the literature and art of the war (including regimental magazines and trench drawings), maps, the music of the war, placards issued by the Government in connection with the recruiting, economy, and loan campaigns, medals and decorations, flag-day souvenirs, and autograph letters of some of those who have taken distinguished parts in the war. Whilst asking that those who have objects of national interest connected with the war will communicate with the Secretary of the Committee, it is just as well that the proviso is added that no article should be forwarded before the secretary is communicated with. We can readily imagine that this official would be snowed under if all the souvenirs at present in England were showered upon him at Storey's Gate.

Already we understand that the remarkable series of drawings by Lieutenant Muirhead Bone is destined for the Print Room of the British Museum, so that, unless this arrangement is revised, the National War Museum will lack completeness. The scope of the work Mr. Bone has already done is wide, and the interest of it great. Indeed, it is difficult to imagine anything which could convey more vividly a living sense of the Western Front to those who will never have first-hand experience of the war zone in France. The drawings vary from the slightest sketches to the most elaborate and finished compositions; but from almost every one there exhales a sense of reality. From one series one gathers impressions of the character of the landscape amidst which our men are fighting so gallantly, or of the desolation wrought by war or German wantonness in town or village or quiet countryside; another gives significant renderings of some of the great architectural monuments on the verge of the fighting-line—Amiens Cathedral, the churches of Rouen, the ruined Cloth Hall at Ypres; a third shows the troops going to the Front by ship or train or motor, toiling in the trenches, on guard, cooking, messing, sleeping, fighting, airmen flying, the guns at work, the Tanks under way; a fourth the wonderful administration and ministration of the Royal Army Medical Corps, from the forward dressing-stations back to the bases and thence by hospital train and ship home. And in all there is far more than a bare rendering of the facts. The facts are there right enough, whether sketched or elaborated; but they are used significantly, and the impression made upon those who look at the drawings sympathetically is of that heightened kind which only a real artist can conjure up.

Then again, there is the fine collection of photographs produced and issued by the Photographic Section of the French Army, to say nothing of many other records of what are the realities of the Great War. All these should find a place in the National War Museum.

At an assembly of Royal Scottish Academicians held on the 21st instant, Mr. G. Washington Browne, R.S.A., was elected treasurer to the Academy, in room of the late Mr. Hippolyte J. Blanc. Mr. Washington Browne is a native of Glasgow, and received his early training there. He served in London under one or two well-known architects, and was the first Scotsman to gain the Pugin travelling scholarship. Returning to Edinburgh, Mr. Washington Browne established a reputation as an architect, and designed many notable buildings of recent construction in the city. He was admitted an Academician in 1901.

Mr. George Kirby, curator of the York Art Gallery, in a local lecture delivered last week, advocated the building of a central "Temple of Art" in York as a suitable war memorial of the men who had left the city to fight for their country. The present Art Gallery, he said, was of poverty-stricken appearance, and quite inharmonious with the architecture of its historic surroundings. He suggested that the present site of the Exhibition Buildings was suitable, and a new building with an exterior in harmony with the King's Manor House would meet the requirements. An alternative plan would be the completion of the present front in accordance with the original design, the cost of which was estimated by architects at £2,500. Dealing with the influence and purpose of art, he quoted an illustration of the power of emotion in the soul to produce fine effects in a quotation from a letter of a York art student now fighting in France. The writer said: "Here among the mud of the trenches I have experienced some awful things. I have seen men's souls quivering to their lips. My God! I could carve now." The vision which inspired Leonardo da Vinci to paint the "Last Supper," said Mr.

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Kirby, was not more a soul's inspiration than that which he had quoted from that letter. The lecturer advocated, as a means of impressing the influence of art and beauty in the homes of the people, the provision, either by public funds or private munificence, of a collection of the best reproductions of the great masters in a building near the Art Gallery or the School of Art, in order that those about to furnish their homes could consult the curator or the art master on the selection of the intended purchases, and thus acquire, for their daily lives in the house, pictures which would be a pleasure and a silent, elevating influence in the home.

In a paper by Mr. H. S. Toms, read at the annual meeting of the Sussex Archæological Society last week and entitled "Remarks on the Prehistoric Village, Plumpton Plain," the author said that the group of earthworks which he had termed the prehistoric village, on Plumpton Plain, was the most interesting of the whole series lying between Mary Farm and the escarpment of the Downs. The group was first noted by him and his wife on May 17, 1913. The group consisted of three embanked oval-shaped enclosures with an entrance to each; one fairly square earthwork; parallel and approximately right-angled banks, and associated fragments of intersecting roads or trackways. The trackway connecting the eastern enclosure with the centre of the group was of the same type as that running obliquely across Faulkner's Bottom. The same kind of terraced trackway occurred on other parts of the Downs. One remarkable feature of the Plumpton Plain enclosures was that there was no indication of the ditches running exteriorly to the enclosing banks. The interiors of the earthworks, too, were appreciably lower than the ground outside the banks. The latter feature was, however, not so obvious in the western work. Inside the earthwork, pieces of sandstone, burnt flints or cooking-stones, flint flakes, scrapers and fragments of a rough hand-made type of pottery had recently been gathered. He was strongly of the opinion that this was one of the oldest village sites yet brought to light in Sussex. The Plumpton Plain "village" road and the equally ancient track traversing the adjoining Faulkner's Bottom both head from the top of Plumpton Bostel. Although he seemed to be the first to draw attention to the existence and interest of the Plumpton Plain "village," it must be mentioned that the group of earthworks appeared for the first time on the 1909 revise of the Ordnance Surveys. In conclusion, he said, as the Downland was so vast and so little of the uncultivated areas had been systematically worked by entrenchment hunters, similar groups might possibly remain to be discovered, but meanwhile he ventured to suggest that the Sussex Archæological Society should keep a strict watch on the Plumpton Plain "village."

ILLUSTRATIONS.

A STREET IN LISIEUX.

THE original etching by Mr. Axel H. Haig, which we reproduce to reduced scale, is hung in the exhibition of the Royal Society of Painter-Etchers and Engravers, to whom and the artist we are indebted for their courtesy.

RUE ST. ROMAIN, ROUEN.

THE original of this illustration, an etching by Mr. Albany Howarth, is also in the exhibition of the Royal Society of Painter-Etchers and Engravers, and our acknowledgments in this instance are due to Messrs. Dowdeswell & Dowdeswell, Ltd., as well as to the Royal Society and the artist.

ROMANESQUE CHURCHES IN POITOU.

REFERENCE to the subjects of our illustrations will be found in the article on "Romanesque Churches in Poitou," by Mr. John Ritchie, M.A., LL.B. (see p. 191).

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

MR. E. GUY DAWBER, Hon. Sec., presided, on March 21, over a conference of members of the Royal Institute of British Architects, when the subject for discussion was "New Materials and Methods as Influencing Design."

Mr. H. D. Searles-Wood, in opening the discussion, said that when asked by the Council to do so, he understood the discussions were to deal with actualities, and therefore he started to make a diligent search for the new materials, and found, as a result, that there were no new materials that could by any stretch of the imagination be capable of influencing design. He therefore made a search for new methods, and found few that could be called new and none that were of sufficient importance to affect design. The new materials were corrugated asbestos sheets used as a substitute for corrugated iron, and, owing to the difficulty of getting any galvanised material, they might have a future, but no artistic merit. There were various new processes for waterproofing concrete which were useful but did not affect the æsthetic treatment of concrete. A committee was sitting at the Imperial Institute to interest architects and builders in woods from India, Nigeria, and the Colonies. They were nearly all hard woods most suitable for joinery and furniture. The new methods he found were Mr. Isaac Shones's "Cuncta in Unum" system of house drainage that had a certain æsthetic value, and it reduced the macaroni-like decorations that the plumber inflicted on their designs under the plea of sanitation. He believed this system had a great future before it. The development of central heating—that was the delivery of hot water to dwelling-houses for all sorts of purposes—appeared to be a business proposition, and, if logically carried out, might go some way to settle the domestic-servant difficulty; and would result in important modifications in house planning in towns. He could not find any place where it had been put into actual practice, though such buildings as the Liverpool Hospital, where central heating was largely developed, showed what the possibilities were. In America and Canada an instrument called a cement gun was being largely used for exterior stucco-work. There were several forms of blocks for building walls and partitions now being largely used in buildings in their parks and open spaces to house the new army of lady civil servants. One, called "The Grip," which consisted of 2½ in. or 3 in. terra-cotta slabs about 1 ft. 3 in. square, and had diagonal grooves forming a lattice on the surface, in which steel reinforcing bars were laid, and the whole surface cemented over, was a strong form of this method. He had seen the drawings of the Office of Works for munition buildings. He found no new materials, but some of the methods were of interest. The problem the Office of Works had to solve was to provide accommodation with the greatest despatch and with the limitations imposed by the difficulty of getting materials. The result was that the buildings were constructed largely of wood. The big stores, 1,000 ft. by 250 ft., were roofed by Belfast trusses of 60-ft. span, formed with 4 in. by 1½ in. battens fixed with cut nails clinched, which were found to be better than bolts. The effect of eighty Belfast trusses in one of the stores was quite impressive. A shell factory now being erected in reinforced-concrete construction, covering 2 acres, was started on February 15, and one-fifth was finished on March 3. There was nothing new in the application of the concrete. The speed of the work was due to the foresight used in arranging for all the materials to be on the site within a week of the start. He merely quoted these examples to show what was being done under present conditions where restricted materials affected the question of design. Some time ago Professor Beresford Pite read a paper on the subject of reinforced concrete

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from which he (Mr. Searles-Wood) had his permission to quote largely. It appeared to him that Professor Pite's paper brought out the points which the subject was meant to give for discussion. Professor Pite summarised his conclusions as follows:—" (1) We have found no instinctive guidance towards an unbiassed and fresh originality in the æsthetic treatment of both a novel building material and principles of unusual application. (2) The invocations of good proportion or of other abstract principles, although useful as weapons of criticism, are similarly of no assistance in creating a system of design. (3) That superficial colour treatments are insufficient for architectural expression, though valuable in assisting æsthetic effect. (4) Positively, that the texture of concrete surfaces modifies and imparts special character to any forms employed for architectural purposes. Therefore, while modern considerations of utility and of novel constructional methods determine the proportions, and may spontaneously—or subconsciously, if this may be supposed—develop qualities which require an æsthetic character, the only method by which definite progress in an architecture of concrete will be possible to us is by the scholarly and critical employment of the traditional plastic forms of architecture, modified by and adapted to execution in concrete." It seemed to him that these conclusions were equally applicable to other materials and methods of construction.

Mr. Kempton Dyson said there were certain new forms of application of old materials he would like to refer to which he considered would influence design, and he had made a classification of new materials, in the sense he referred to them as new, so as to keep his remarks in order. Under the new heading of constructional materials he must first refer to reinforced concrete which was a material having distinct advantages as regarded fire resistance, freedom from decay, and its hygienic properties, whilst under certain conditions it was economical. It was not always economical; it was not able to do everything as some people would suppose. To his mind its use entailed considerable changes in architectural form if it was logically developed. Firstly as regarded the treatment of voids, they could obtain larger windows and get more light, which was increasingly required in modern building. It affected the whole fenestration of buildings. Then in the treatment of the surfaces of reinforced concrete there was the matter of mouldings and how a flat surface should be treated, and he did not think mouldings of any type of the past were appropriate. The correct treatment seemed to him to be to devise forms of moulding which come away freely from the centering. Then they had another new factor in reinforced concrete, which was the ease with which they could make cantilever projections. The previous night Professor Pite called his attention to the fact that they had architectural cantilevers in India, where they had a lot of timber cantilever work; and there were also domes carried out on a sort of cantilever construction. But that had nothing of the nature of what might be termed monolithic cantilever work, where buildings were carried over the footway and so on. It was unfamiliar and required care in treatment, but probably something different could be made to any forms they had had in the past. Another feature in which reinforced concrete was absolutely novel as regarded architectural treatment was in its monolithic character of continuous beam construction, for there was nothing in the nature of continuous beam construction in the past. By the use of reinforced concrete they could suspend things and carry girders continuously over a number of supports, and the detail of these girders and the treatment of the beams for the supports brought in quite a new outline and new form. Then, again, in such beams they could cut holes or make indentations in the surface, and these indentations should be in conformity with the skeleton of the building. They should not put in the sort of indentations which reduced the strength of the beam, and therefore they must devise shapes of holes or indentations which served their purpose, and that was a thing which naturally would be different from anything which had gone before. He remembered seeing some illustrations of work done in Vienna where the indentations were placed below what was called the neutral axis and were rather long oblongs; and they struck him as being very appropriate to the material. In reinforced concrete they had not only the question of monolithic work, but they could go in for pre-cast work, which was something in the nature of artificial stone work. There were great possibilities in connection with this, and he thought it would be very economical. There was also the question of plaster finish. He saw no objection to casing reinforced concrete construction. Concrete was a nasty colour, and it seemed to him quite appropriate to put on a better material. They put plaster and tiles on to walls instead of showing the bare brickwork, and they also placed marble on walls, and why not do the same thing in the case of reinforced concrete? Why should they not put timber on it, the same as they put panelling on to brick walls? He suggested they could clothe the exterior with a veneer of richer material, but it must be shown as a veneer. In the case of buildings such as factories, of course they could not afford a veneer of richer materials, but they had various methods of treating surfaces which would give good effects. For instance, when the surface was green it could be chiselled and it could be hammer dressed. They could scrape it and scrub it, and by so doing expose the small stones. He had seen the base of a reinforced concrete building treated by gouging out large grooves, and it gave a good appearance. Then the employment of reinforced concrete enabled them to construct very thin walls, and he saw no objection to it, but it involved a difference in treatment. One great advantage of reinforced concrete was its greater inertia and freedom from vibration, and this made it a very appropriate material in places subject to earthquakes. At present there did not seem to be much attempt being made to treat the reinforced concrete dome, although it was a very appropriate material for roofing over a large space. Reinforced concrete had also an effect on the construction of foundations, although that did not come very much into ordinary architectural treatment. It affected the treatment of basements and involved a difference in planning of a building. Then, again, there was the whole treatment of the monolithic arch and beams. Altogether, reinforced concrete opened up a new field, and its æsthetic treatment had yet to be devised. Steel frame construction also permitted of large windows, and it altered the whole intercolumniation, the same as in the case of reinforced concrete. They would have to get some newer sense of proportion. They could get longer openings, which was part and parcel of the intercolumniation business. He thought it was possible that non-corroding steel might be developed, and if they had steel exposed they might express the rivets in some way like pins in half-timber construction. As to the clothing of the steel frame, what was appropriate to reinforced concrete would probably be appropriate for the steel. Reinforced concrete and steel construction had brought about the erection of high buildings and the canons of the past could not apply to such buildings. With regard to the use of artificial stone and brickwork substitutes he did not see why they should not do away with some of the smaller details of building construction which were repeated from ages past. In connection with artificial stone they could use materials of variegated colour and form. Possibly they would be able to polish the surface of the concrete in the future, for something of the kind had already been done, although it had not yet been properly worked out. Then amongst other new materials they had slab partitions, metal lathing, asbestos cement sheets and so on. A thing which had arisen which made architectural treatment of the past largely inappropriate was the invention of plate-glass. Of late there had been developments of reflecting glass pavement lights and other things which had rendered the basements of buildings useful; and all these things must have their effect on the design of buildings. At Selfridge's premises they had three basements in use, but by the use of reinforced

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concrete he thought they might be able to go down economically and have five or six basements. The Building Acts prevented buildings going higher, and so building owners on valuable sites would go down. With regard to waterproofing materials, it was necessary to use asphalte in consequence of the value of lead and zinc, and the material was being increasingly used for flat roofs. Might they not consider the possibility of putting gardens on the roofs of buildings? They could get good permanent pergola construction on roofs as in San Francisco. He believed in time to come when men owned their private aeroplanes there would be continuous flat roofs to serve as alighting places.

(To be concluded.)

THE TOWN PLANNING INSTITUTE.

A meeting of the Town Planning Institute was held at 92 Victoria Street, S.W. (by permission of the Institution of Municipal and County Engineers) on March 23, and was presided over by Mr. F. M. Cockrill.

Mr. H. V. Lanchester, F.R.I.B.A., gave an illustrated lecture on "Town Planning in Southern India," in the course of which he said that India some fifty years ago was mainly organised on lines not very remote from those of mediæval times. Now modern commercial methods were extending rapidly and had only received a temporary check owing to the War. Despite the innate conservatism of India, the advantages of improved communications and transport facilities had been universally recognised and the difference this must make to social organisations was easy to guess. His work last year having been mainly in Southern India, he proposed to deal with that part of the Empire, as in many ways there were marked differences between this and the more northern provinces. For the purposes of definition they might divide the area by the language spoken, Tamil, Telegu and Malayani, and he would describe a typical town in each of these districts. Gathered round the great temple the Tamil city was deliberately subordinated to this dominating central group. The houses were low and unobtrusive, and sometimes it was regarded as lacking in piety to build higher than one storey anywhere near the temple. The whole city plan was originally set out in relation to the temple enclosure, and it was only in the more recent extensions and suburbs that it fell into disorder. Further south in the Telegu cities they no longer found the great temples, and the cities lost in impressiveness accordingly. There was no dominating feature, and the centre was only defined by the principal bazaar or main business street. The central and older parts of the city were more or less rectangular in plan, and had in many cases been enclosed with a wall. They found large tanks, but the smaller ones were fewer in number than in the south. The houses differed in type, tending towards a greater height and a diminished area. In the Malayani cities on the south-west coast they found the garden cities of India. The whole coast was one great sea of palm trees, with the cottages almost hidden amongst them. Each dwelling would have from a quarter of an acre to an acre of ground, with its palm trees and a few other shrubs and plants, a small pond of water and the rest of the surface firm sand. The colony of British officials and other Europeans always occupied a suburb of the town and quite different in character. It was generally loosely and somewhat carelessly laid out, sites having been taken up from time to time according to the taste of the official requiring a house, and subsequently linked up as far as possible under the Public Works Department. The cantonment often covered a larger area than the town. There was no reason why it should not have been laid out properly at the start, and even now some were not past redemption. Whilst the Madras Town Planning Act was not yet in operation, the Indian was so accustomed to the authorities taking the initiative that in many cases town extensions were being undertaken by the municipality under Government control and advice, whilst at the same time a good deal of pressure could be brought to bear on private enterprises. On the other hand, by-laws were loosely drawn up and interpreted, and were very difficult to get enforced, owing to the meagre recognition of their duties among the newly formed corporations. Encroachments on public roads had been tolerated for so long that those needing more room regarded it as rather a hardship if they could not filch a strip from the road, especially if their neighbours had already done so a few years back. The problem in traffic congestion under these conditions might be imagined. In conjunction with this they found the tendency to overcrowding, and this in India was not based on economic grounds as in Europe, but on social ones. A given area was occupied by those of one religion, caste or trade, and owing to the contiguity of other castes or trades incompatible with the first, this area was unable to expand and increased provision could only be made by packing houses closer on the ground. Again, the division of property among members of a family tended in the same direction. Restrictions as to the number permitted to occupy premises of a certain capacity were easily drawn up, but very difficult to enforce. The same might be said of by-laws restricting the amount of building on a given area, though with these the enforcement was somewhat less difficult. He was inclined to put more faith in the policy of providing a counter attraction in the way of pleasantly arranged building areas, with every possible convenience of access and as near as possible to the congested districts. Added to this it required skilfully organised adjustments so that the various castes or trades should not be violently uprooted, but rather offered some special inducement to remove, such as increased open space, or improved facilities in some form or other. Even then the problem was a difficult one, but there were signs of an increasing appreciation of the advantages of this type of solution, and the more frequently it succeeded the less would be the resistance that it met with in the future. In laying out new extensions, possible future difficulties of this sort could be more easily guarded against. There was no reason to fill up the area solidly at once. Alternative sections or sites might be kept in hand and temporarily let as gardens, or for some other suitable purpose, to the occupants of the plots dealt with, or to others. Thus, where a reasonable claim was made out for a house site in proximity to those occupied, one of these could be allotted. By this means the desires of increasing families could be acceded to without creating congestion. One point was that in the allocation of special trades and industries to definite quarters, and the arrangement of the housing in connection with these allocations, it should be seen that the people who lived in a certain quarter would find their occupation as near as possible to that side of the town. The old sastras pointed the way, showing how to allocate the various people in the various parts of the city. Take the four great divisions; the sastras said that they should be located in the four parts of the city. One could not say that it was exactly practicable without expanding the method, but they had only got to pursue the same system as there was a clear indication of what was wanted. By studying a city and seeing where the various occupations were located and how they were sub-divided, not thinking too much of the letter of the law, but trying to fulfil its spirit, it would be seen that it clearly pointed to the fact that the people should be located in such a way that they would be most conveniently placed in relation to the occupation they had to pursue. And in that way one was able to counterbalance what appeared a somewhat unwieldy growth of the city, when the method of giving increased space in order to avoid congestion had been adopted. As a broad generalisation, one might assume that to a large extent castes and industries were identical. They knew a number of more or less industrial castes, and thus the matter was simplified. A sub-division of cities by caste areas was therefore to a large extent a sub-division of the city by industrial areas. Some of these found their

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own places naturally. Some of them, the agricultural people, were placed by choice round the edge. The Indian city was often too much like an enlarged village, industrial and agricultural occupations were apt to get too much tangled up in the heart of things. It would be much better if such occupations as cattle-keeping and the like were on the fringe of the city, rather than in closely built up areas. There did not seem to be sufficient reason for providing, as it were, a village with cattle in the midst of the congested quarters. Still, one recognised that these things must be adjusted and arranged for by degrees. New streets and open spaces were far more often required for the purpose of opening out overcrowded neighbourhoods than as provision for the needs of traffic, so that, desirable though a direct thoroughfare might often be, they had to be careful not to let the idea of this obsess them, and lead them to adopt a scheme more extravagant than the actual needs of the case demanded. It was always desirable to avoid the destruction of good class property, and it was usually in the interests of traffic that such destruction might be contemplated; therefore, the traffic need must be proved before this could be justified. If improved aeration and relief of overcrowding was aimed at, they would find that the "weeding out" of the worst type of dwelling would almost always answer the purpose.

With regard to expropriating householders under a clearance scheme, perhaps the best method was for the municipality to provide a new site to allow so much of the old buildings as might be portable to be transferred and re-used, and then to pay out the amount allowed as compensation in instalments, as the new houses were erected. If the householder desired (and in this he should be encouraged) to build a better house, the municipality could lend a further sum, taking a mortgage on the house, this sum to be repayable by the householder in monthly instalments, proportioned to the sum so advanced. In all cases the house to be built should be approved by the municipality, as being good in itself and suited to the position of the owner. An Indian city, properly organised, would always retain its tanks, and their abolition though occasionally justifiable was more often the result of lack of consideration and distinctly prejudicial. Everywhere water, either as stream, river, lake or tank was a source of delight, and particularly was this the case in a hot climate. The advantages of water carriage had not been by any means adequately exploited in Indian towns. In many where the situation lent itself admirably to the provision of a canal system such a system was lacking, and even where canals had been made, they were often neglected and not made the best use of as a means of transport. Ports like Calcutta and Cochin, placed on low-lying ground, would be greatly the better for an extended canal system, such as in the Netherlands, and there were numerous other coast towns where development on the same lines would be economically sound.

Professor Adshead, in proposing a vote of thanks to Mr. Lanchester, said the paper was extraordinarily interesting as being a piece of first hand information of that mysterious dependency, India. India to most of them was a mysterious world, and the more they saw of it the more mysterious it seemed to become. He could not say that he had made a great study of India and Indian habits himself, but in his architectural pursuits he had discovered some extraordinary movements in India. One had to realise that there were buildings in India erected about the time of Alexander the Great in the third century, B.C., still existing, and there could be no doubt that the invasion of Alexander had a great influence on Indian architecture. In the British Museum he had seen bas-reliefs from India which one could swear were from Rome. He did not know how they got there, but they were line for line Roman details. Then, of course, he supposed one of the greatest influences on India was the Mahomedan invasion about the sixteenth century. Altogether the cross currents and the various invasions, principally from the north, had produced the most extraordinary variety and conglomeration of styles and habits and customs amongst the people. Just at the present time their responsibilities to India were, in a sense, emphasised. They were in occupation, and the Indian, as Mr. Lanchester had told them, was a very amenable person compared with the usual owner in England, and those responsible for town planning would probably not meet with such contentious owners and with such difficulties as they met with in this country. At the same time the habits and customs of the people and the characteristics which were indigenous to the country were naturally not the same as those who were in authority and had to administer town planning Acts, and therefore it was essential that those responsible for such Acts should be men of extraordinary sympathy and penetration. They had some Indian members of the Institute, and he believed in the future they would have an increasing membership not only of Europeans in India, but of natives of India.

Mr. E. G. Culpin, in seconding the motion, said he believed that Mr. B. W. Kissan had got the Bombay Improvement Board to carry out a lot of housing schemes, and there was a Society being formed in Madras itself for the acquisition of a considerable area of land for laying out cottage property, and the plan he had seen was quite a respectable one. Professor Adshead had mentioned their responsibilities towards India in this matter. In thinking the matter over, he wondered whether really the propaganda work which had been done in India for town planning was the best that could have been done. One was always sensible of the debt owed to Professor Geddes for his work, but one wondered sometimes whether the sort of work which had been done and the exhibitions which had been held were quite the best way of teaching the natives to deal with the problems they had had described that night. It seemed to him that something a little more elementary was required, although Professor Geddes had gone right into the root of the matter. Still, was there not something more practical to be done before they could deal with the awful overcrowding difficulties?

Mr. G. L. Pepler asked, with regard to streets, was it the fact that the reason for their narrowness was partly a matter of shade, and that if they had wide streets there would be difficulties both with regard to shade and also to the wind blowing about sand? He had heard that criticism with regard to the planning of Khartoum and wondered if that was the reason for the narrowness of the streets in India. Another point he would like information about was whether in the case of a house which had been the home of a family for a very long time, the ancestors had a "vested interest"; that the spirits of the ancestors still lived in the house which led to difficulty in demolishing it. Perhaps, also Mr. Lanchester might enlarge on the question of the temple—that it must not be touched in any way. He should imagine it made it a difficult thing to clear the roads if a temple under no consideration could be interfered with. The motion was carried.

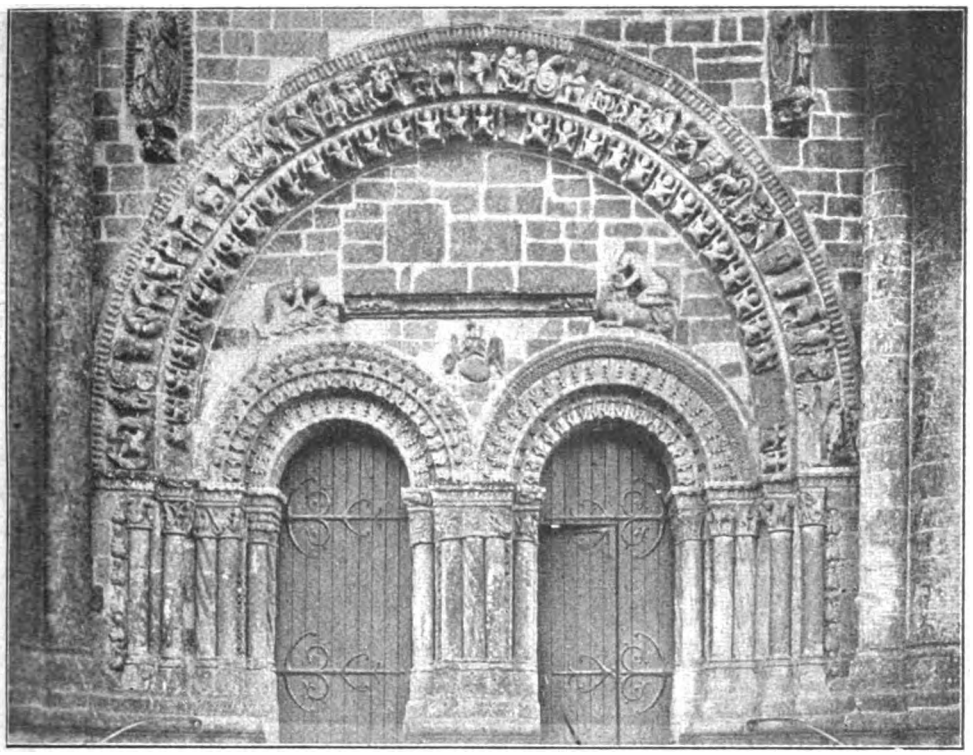
Mr. Lanchester in reply said it was not a question of shade in Southern India, as the palm trees and other trees grew freely and shade could be obtained. The Indian attached very great importance to his ancestors, but he had not come across anything of the same kind as the shintoism of Japan. It was very rarely indeed that a temple was removed, and in planning one had to adapt residences to that fact.

Mr. Davidge proposed that the Institute should place on record its congratulations to the various authorities in India who had promoted the principles of town planning and wish them every success in their efforts.

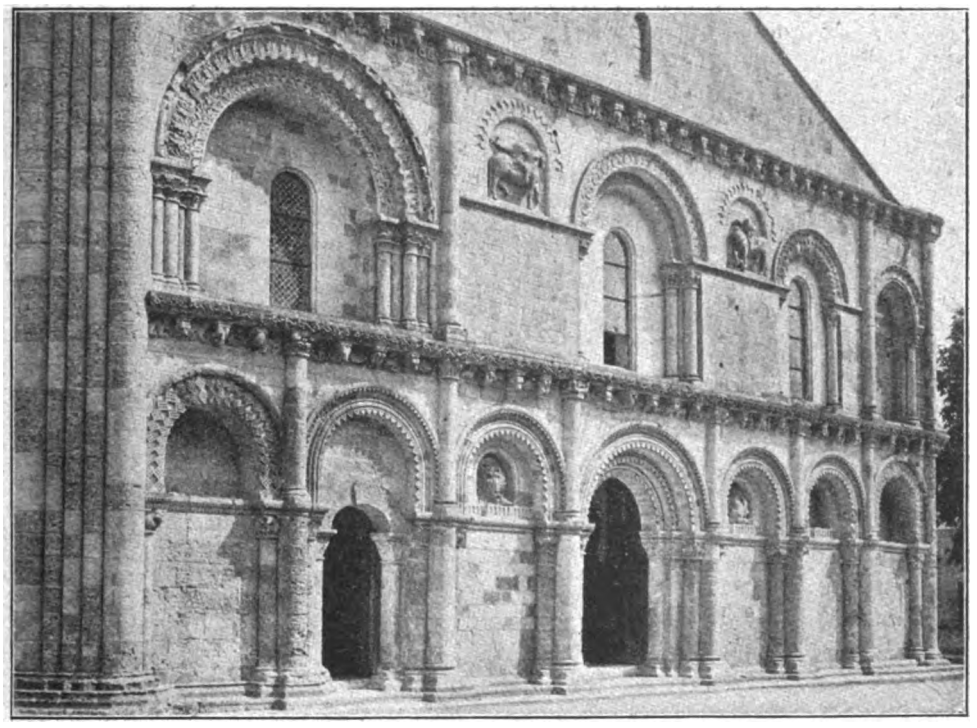
Professor Abercombie, in seconding, said he had read many of the reports of Professor Geddes, and the suggestions thrown out suggested great sympathy with the aims and ideals of the Indians themselves. He should think his general influence on the Indians must be of great service.

The resolution was carried.

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VOUVANT.



SURGÉRES.

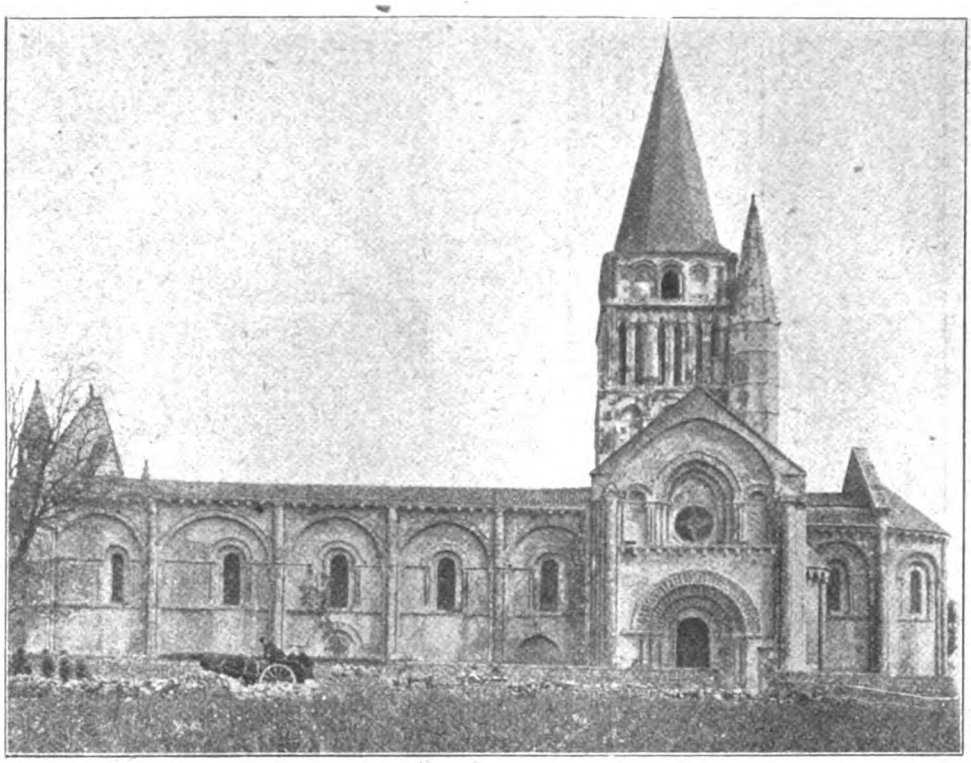
ROMANESQUE CHURCHES IN POITOU.

By Mr. JOHN RITCHIE, M.A., LL.B.

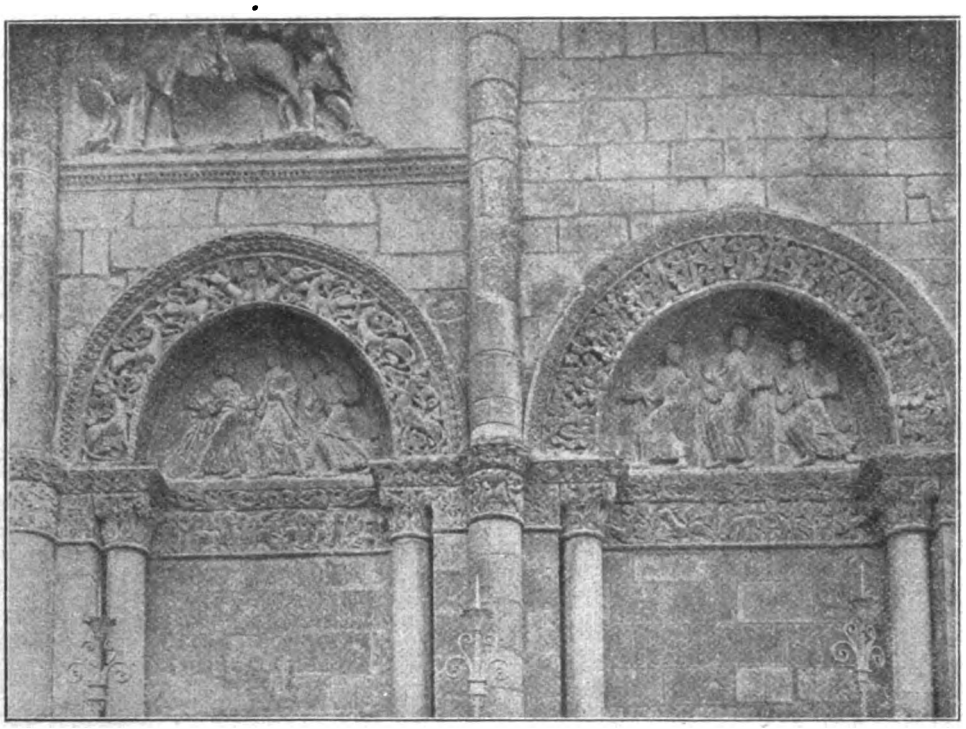
THE architecture of the eleventh and twelfth centuries in Europe was fortunate in having applied to it—by writers of the last century—the name Romanesque. This term, unlike the epithet of depreciation "Gothic," did actually suggest some of the influences which gave rise to the new architecture, and naturally linked itself with the word "Romance" as applied to the languages which sprang from the speech of Rome. The problem of the Romanesque builders, as commonly stated, was how to vault a basilica. Different methods were adopted in different districts of western Europe, and nowhere were the attempted solutions more interesting than in the schools which arose in the provinces of France. Several causes led to the formation of these schools. The provinces kept largely to themselves and were affected by separate traditions. The Monastic Orders were the great builders in Romanesque times, and representatives of these Orders passed into province after province carrying with them their predilection for a particular model of a church, but these preferences, in turn, had to undergo modification when brought into contact with the technical methods of the workmen of the province, with its building material, and with the requirements of its climate.

The Poitevin school may be taken to include the work executed in Poitou (comprising the modern departments of Vienne, Deux Sevres, and La Vendee) and in Saintonge (comprising the departments of Charente and Charente Inferieure). In this district the builders raised a tunnel or barrel vault (as at Melle, Nieul sur l'Autise, and

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AULNAY.



ANGOULÊME CATHEDRAL.

Aulnay) over their churches, but in doing so they sacrificed the clerestory lighting which had been a characteristic of the early Christian basilica. The tunnel vault of the nave was made to rest directly on the pier arches. The only lighting was obtained from the windows of the aisles. Abutment for the thrust of this vault was found by raising the aisles to a height almost equal to that of the nave. This enabled nave and aisles to be covered by one roof.

In the eleventh century the usual form of vault was semicircular with transverse arches (Nieul sur l'Autise), but a pointed vault of this type (Melle and Aulnay) came into use in the beginning of the twelfth century. In some churches the aisles had vaults of the types mentioned, in others they had groined vaults and in others quarter of a circle vaults.

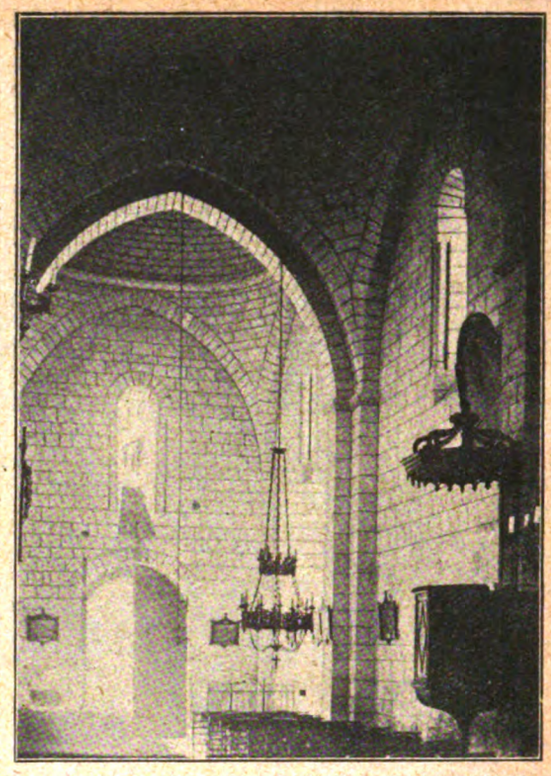
Columns were found as supports in some of the eleventh century churches, but the common form throughout the whole district was a pier of clustered columns forming a quatrefoil on plan.

The west fronts in many cases formed screens, with no strict logical relation in their elevation to the church behind them. They were magnificent frontispieces, as one writer has called them. The common arrangement of the façade in Poitou consisted of three arches on the ground storey corresponding to three arches in an upper storey. In Saintonge, on the contrary, the arches of the upper storey (or storeys) were increased in number. Sometimes small figures were placed in the niches formed by these arches (as at Perignac). Many of the west fronts, particularly in Saintonge, were very richly sculptured, special attention being devoted to the

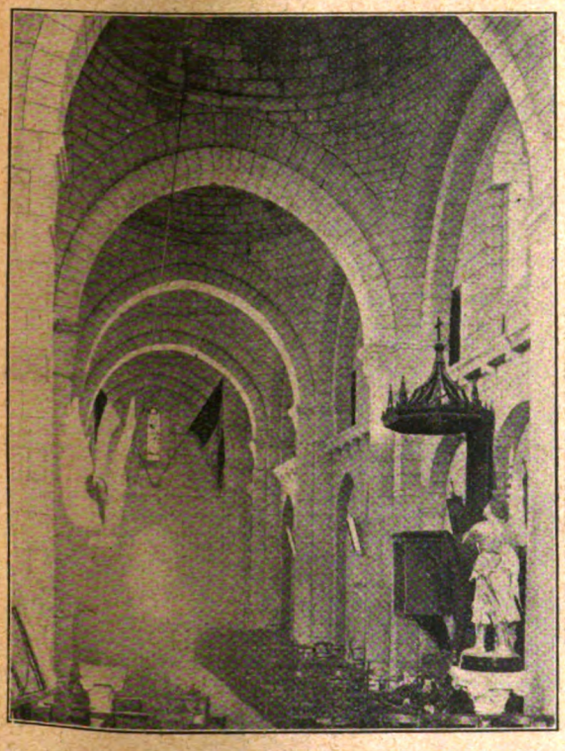
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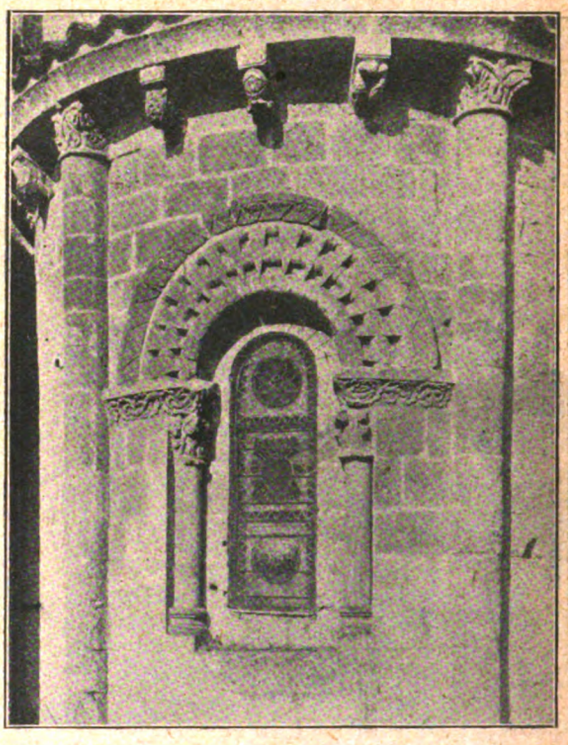
S. PIERRE, MELLE.



BOURG CHARENTE.



GENSAC.



S. PIERRE, MELLE.

doorway and the two blind arches on each side of it. A curious characteristic of the doorways was the absence of a tympanum.

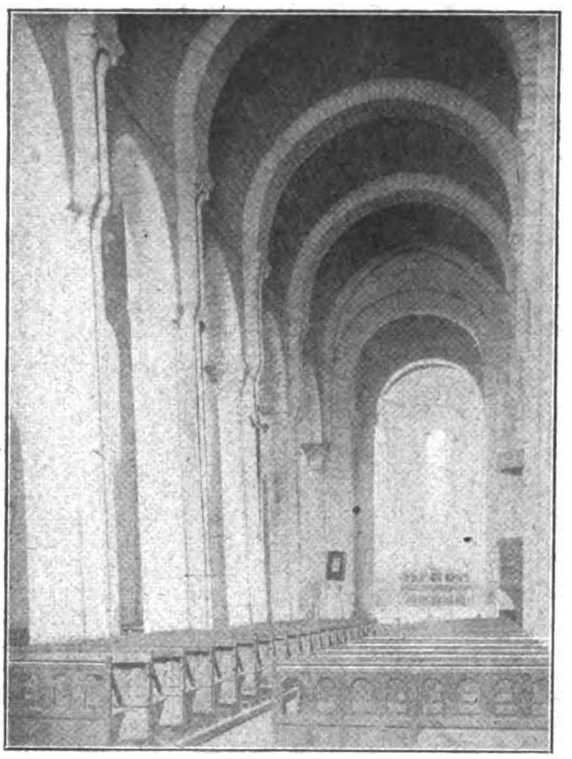
The apses were also richly decorated, the windows often receiving specially elaborate treatment. The buttresses consisted of single columns or clusters of columns. Quaintly carved corbels and cornices were another characteristic feature. In plan, the east ends were sometimes triapsal, sometimes periapsidal.

In many churches there was a tower at the crossing, frequent examples being found of a very beautiful type, terminating in a conical pyramid covered with imbrications, as at Roullet and Saintes.

The exterior of the churches is often more remarkable than the interior. This is to some extent attributable to the extraordinary exuberance of the sculpture on the exterior, which showed many signs of Byzantine influence.

While the method of covering a church with domes was that specially associated with the adjoining province of Périgord, many examples of this type of church are to be found in the valley of the Charente, as at Bourg and Gensac. It is now generally recognised that these churches owed little to Byzantine or Venetian influence, but that they were built in a manner indigenous to this part of France.

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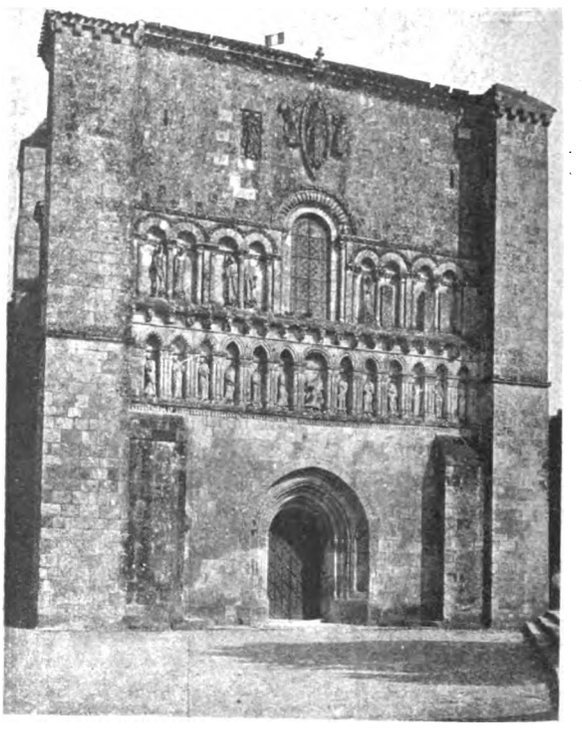
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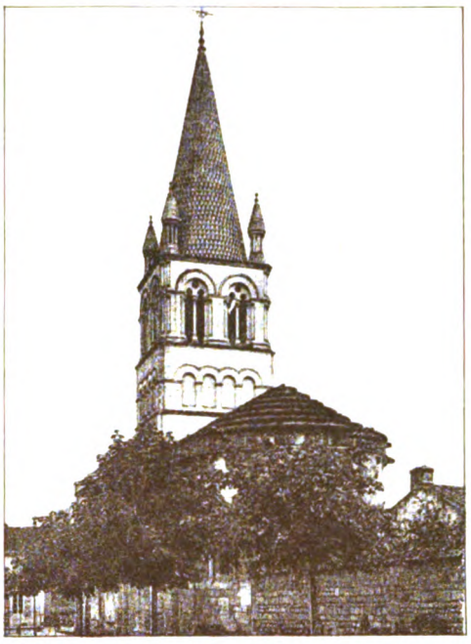
ARCHITECT'S FEES FOR MODEL BAKERY.

IN the King's Bench Division, before Mr. Justice Ridley, Mr. Frank Bethell, member of the Society of Architects, claimed £233 10*s*., architect's fees, from Mr. F. W. Page, of 41 Gordon Road, Peckham, under a verbal contract of February 14, 1914, to prepare plans for building a model bakery at St. Aidan's Road, Peckham, at an estimated cost of £4,670, on which defendant, it was stated, had agreed to pay the Institute of Architects' approved 5 per cent.

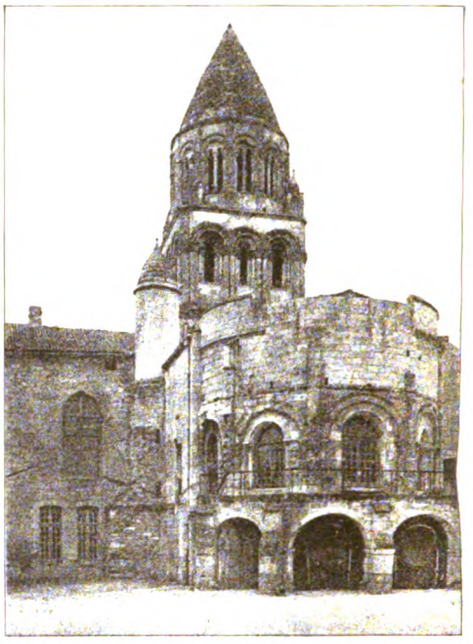
Mr. Enness, for the plaintiff, said Mr. Bethell had been for seventeen years a specialist in the erection of modern steam bakeries, and knew just how, in this difficult machine, to contrive the succession of operations with the minimum of cost in labour and materials. He was shortly proceeding to France to organise field bakeries for the War Office. Bakery engineers had given his name to Mr. Page, and Mr. Page, who telephoned for him in December 1913, and explained site difficulties, telephoned again announcing the dissipation of those difficulties and appointed with Mr. Bethell to see his Gordon Road Bakery on February 17. There Mr. Page said, "What are your charges?" and Mr. Bethell replied, "Those of the Architects' Institute, 5 per cent. on the net sum expended." Defendant said he preferred

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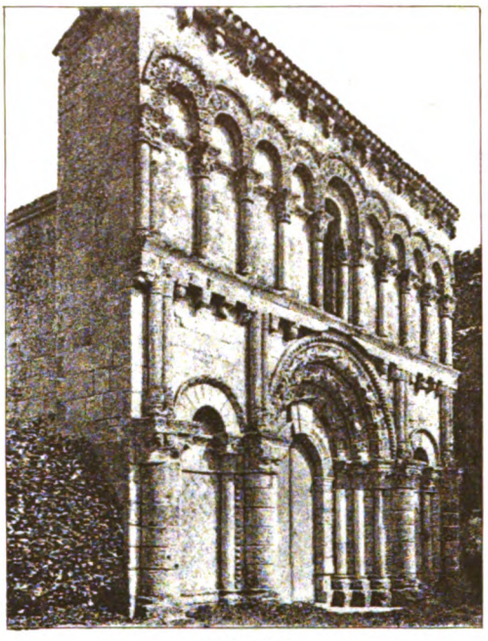
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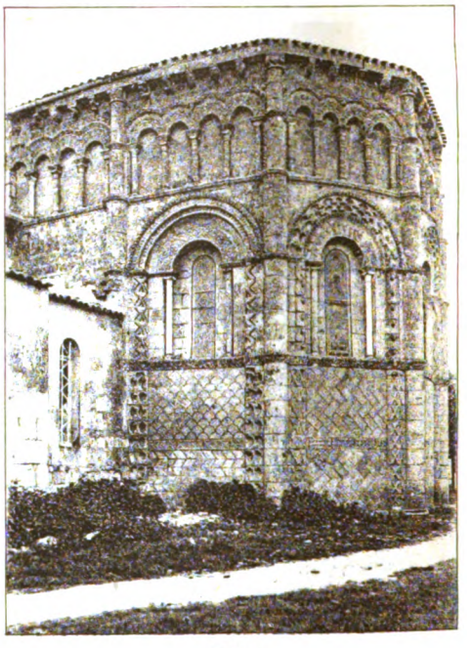
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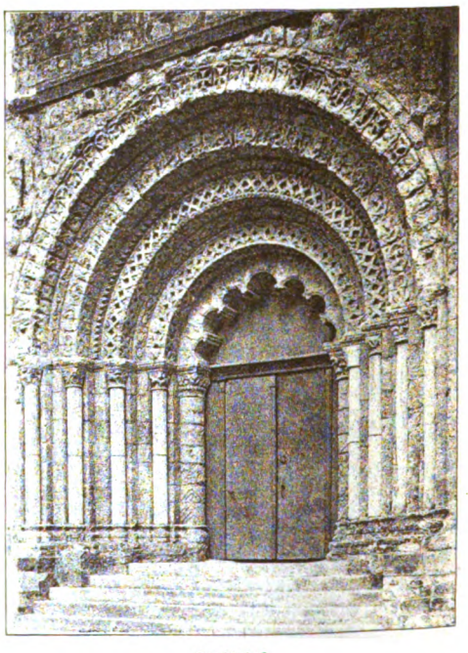
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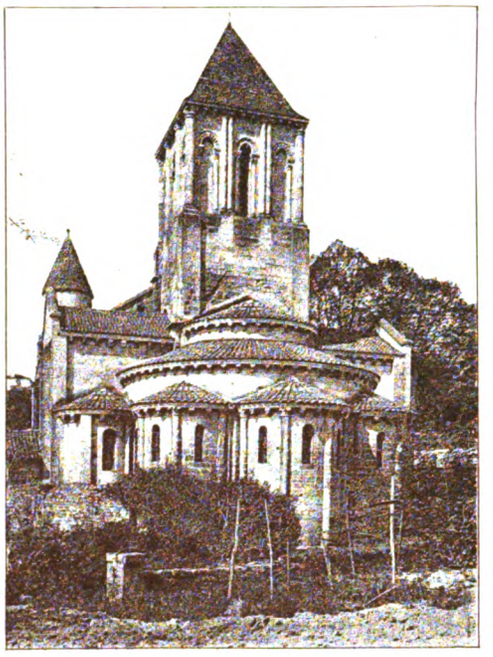
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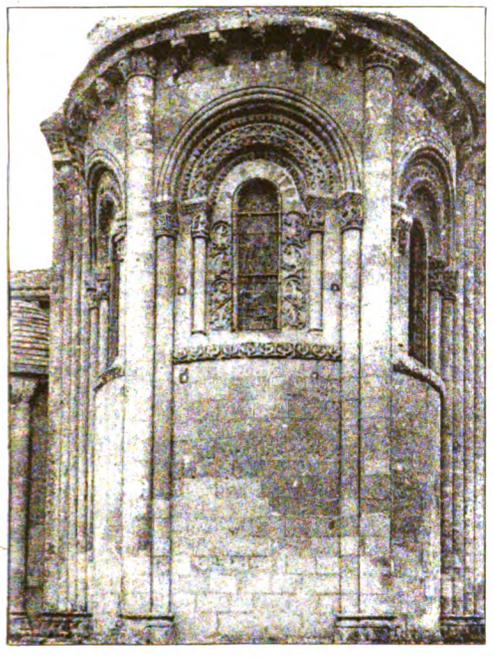
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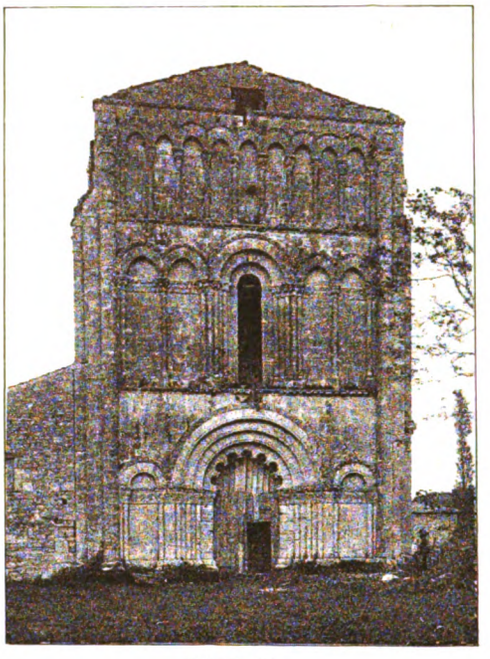
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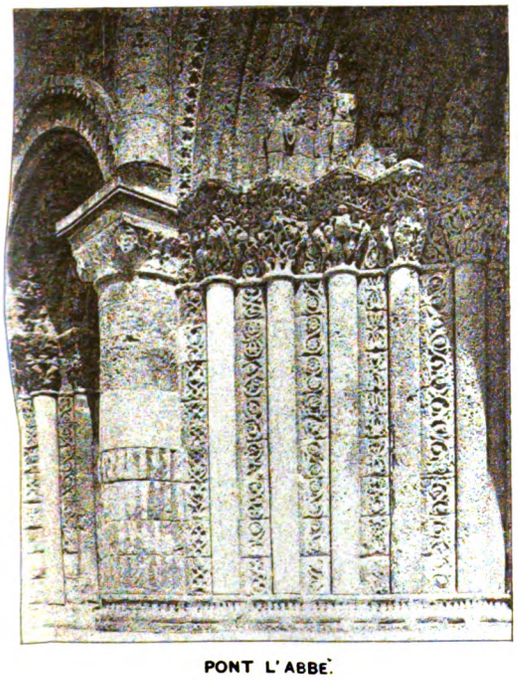
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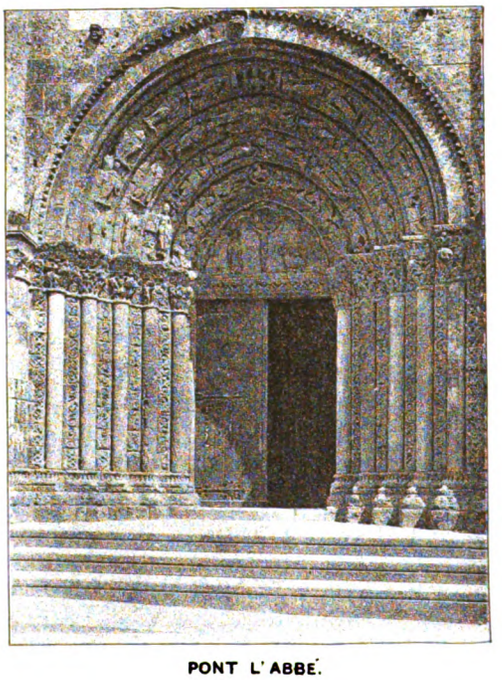
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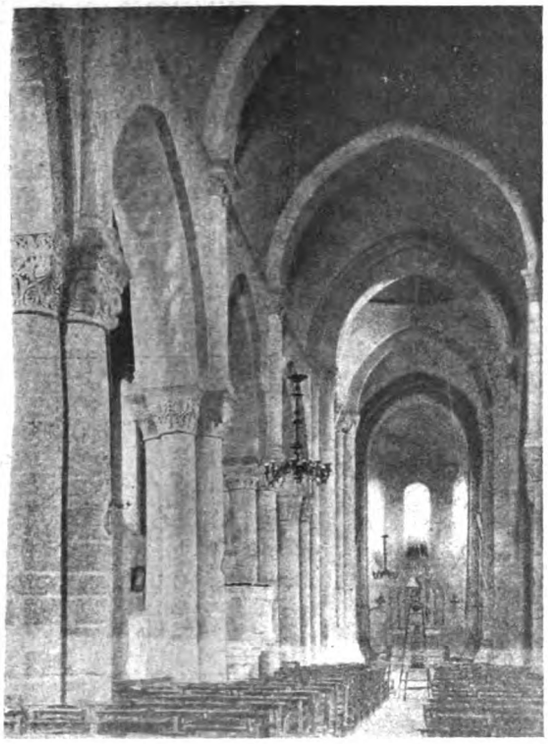
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a lump sum; plaintiff answered, however, that he had five bakehouses in hand at the moment, and he could not depart from the 5 per cent. terms. Page then agreed to them. Mr. Bethell would put in a notebook confirming this account of the conversation, and would say that he showed defendant how unnecessary were some of the expenses he proposed. Later plaintiff produced a sketch plan, and defendant told him that a house on the corner site was being built on plans by somebody else. Defendant went to see plaintiff's newest bakery at Stoke Newington, and then gave instructions to proceed with the final plans. Unknown to plaintiff—counsel went on—defendant was proceeding by stages. He had ideas of his own; he got them embodied in plaintiff's plans and took those plans away with him; he knew of a good working foreman, he said, and proposed to build through him, buying his own materials and paying his own workmen, though Mr. Bethell warned him of the financial risks of such a procedure. Finally Mr. Page telephoned that, proceeding on these lines, he would not want an architect to supervise, and wrote that Mr. Bethell was not to go on with the plans. Defendant (said counsel) was in possession of the architect's complete ideas and the total results of his skill and experience. They had discussed all the details; Mr. Page's own ideas had been embodied; and defendant had gone so far as to get plaintiff's opinion on the sanitary arrangements that they might not be rejected by the urban sanitary authority. He was also in touch with some person who was drawing plans for a cottage for him. At a later interview plaintiff, who did not like disputes, said he would accept £100, and would decline further responsibility. Defendant did not agree to the lump sum. One of plaintiff's letters said, "The plans are ready to be traced off and the draft specification ready for your approval."

Mr. Bethell, giving evidence, said that, according to Conditions of Engagement and Terms of Remuneration of the Architect, as sanctioned by the Royal Institute of British Architects, the preparation of "further designs necessitated by a material alteration in, or addition to, the client's instruction," was an extra, and such amendments were required here; surveying the site and taking the levels was extra.

His Lordship said he knew the custom as to architects' fees. If the defendant agreed to pay the usual architect's fees, and then said he would not go on when the architect had prepared the plans, the architect was entitled to 2½ per cent.

Mr. Comyns Carr, for the defendant, said he should call evidence to show that the defendant disapproved the plans. The question was whether the defendant approved the design.

His Lordship: You cannot say "I won't approve the design when he had drawn his complete plans."

Mr. Carr suggested this was a case of "preliminary sketches and interviews where the drawings are not further proceeded with."

His Lordship examined the plans and heard evidence that they were complete and were built up with the complete specifications, and then advised the defendant to agree to the £100 payment.

The case was settled on those terms.

Correspondence

[The Editor will not be responsible for the opinions expressed by Correspondents.]

The Teaching of Building.

SIR,—The remarks in your leader on the above subject in your issue of March 16 particularly appealed to me. Why should a man be allowed to design and build a lopsided house to annoy both present and future generations? Many desirable building sites have been spoilt by the prior erection of a few badly designed houses. We all know this, and yet there is neither law nor any movement to stop the most atrocious erection being perpetrated upon the public.

Such a law would save some bad designers from their own evil deeds, for I am sure many men must be disgusted with the living creation of their monstrous ideas. I know of a builder in a certain seaside town who fancies he is an artist. Once he gets you in his den he will talk to you for an hour, showing you pictures which will make your head reel. His method of decorating his houses is to dab cement on stone or rough brick, and then to scratch it into the semblance of an Indian totem. This rising seaside town has numerous villas defaced with this terrible plastic cement carving. Even little children laugh at them, and yet the old man is very serious about his carvings. He thinks he is making the neighbourhood artistic!

Another builder whom I knew well never designed anything until he designed his own house. The capitals in the porch are twice the size they ought to be. It is a fact that he had not been in this house long before he took to drink and is now a ruined man. He told me the porch looked different on paper and that it spoilt his house. I honestly believe the porch annoyed him so that he drowned his chagrin with alcohol. How much better would it be for the community at large if builders and private individuals had to employ the assistance of an architect, who in his turn was fully qualified to design buildings. There is enough work for both architects and builders. The few guineas which a builder saves by making his own plans could be earned over and over again in the time devoted to making plans, if spent in improving his business.

I have repeatedly told builders this, and have brought such logical arguments to bear on the facts (which are too lengthy to go into here) that they have without exception agreed with me that it would be better to give even a cottage plan to an architect to make. On the other hand, builders would no doubt insist that no architect should be allowed to buy building materials and employ building labour, as is sometimes done by architects for their clients. Every man to his trade is a good motto, and it applies to professions also.—Yours, &c.,

J. H. KERNER-GREENWOOD.

King's Lynn: March 21, 1917.

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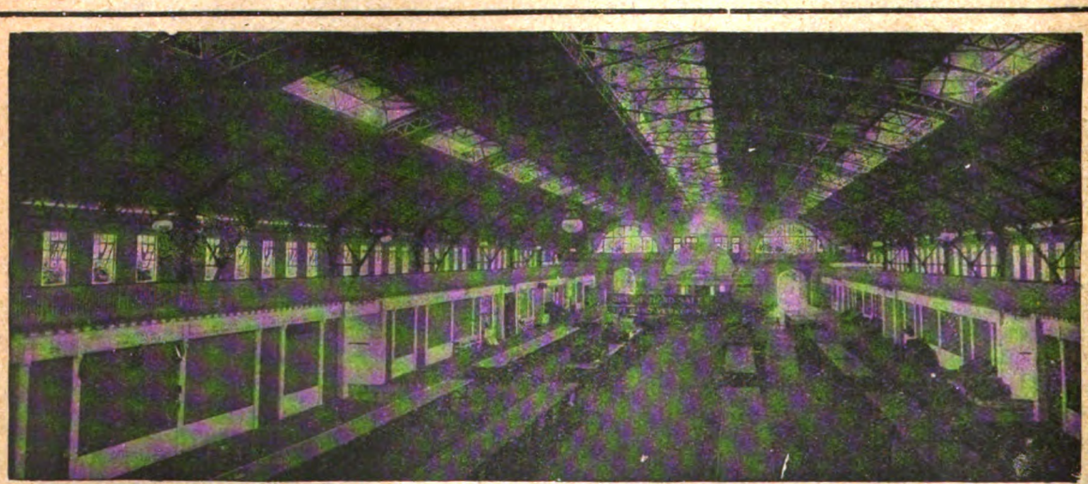
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Blinded Soldiers' Bazaar.

SIR,—Will you permit me to ask your readers if they will be so generous as to give support by gifts in cash or kind to the Blinded Soldiers' Bazaar which is to be held at the Royal Albert Hall during the second week in May? I feel sure that no flowery phrases are needed to evoke their sympathy for the men who have made so great a sacrifice for the freedom and future prosperity of this country. So may I please just leave the matter like this?

If you who read this letter think that the fight which Britain is making is a just fight, if you honour and respect the men who have represented you in that fight, if you have sympathy for those who in thus representing you have suffered so terrible a deprivation as the loss of their sight, you will send a contribution, be it large or small, be it in cash or kind, to the Secretary, Blinded Soldiers' Bazaar Committee, 6 Bayswater Hill, London, W.—Yours, &c.,

ARTHUR PEARSON,
Chairman, Blinded Soldiers' and Sailors' Care Committee.

St. Dunstan's, Regent's Park.

BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders, the address is, as a rule, local.)

ENGLAND.

BEDFORDSHIRE.

Bedford.—Nos. 85 and 87 Hurst Grove: additions and alterations for Messrs. W. H. Allen, Son and Co., Ltd.; also

Queen's Engineering Works: additions, alterations, and extensions.

Stores, Cauldwell Road, Corporation Electricity Department.

Lynton Works: additions for Messrs. W. M. Robertson & Co., Ltd.

ESSEX.

Ilford.—No. 19 Cranbrook Road: alterations for Mr. A. S. West.

No. 341 High Road: alterations for Mr. A. Webb.

Factory, Grove Road: alterations for Messrs. Fuller & Sons.

Factory, Grove Road. Messrs. Charles Heathcote & Sons, R.I.B.A., architects, 110 Cannon Street, London, E.C.

GLOUCESTERSHIRE.

Cheltenham.—Motor garage, Regent Street, for Messrs. Dale, Forty & Co.

Printing Works, Manchester Street: additions for Messrs. Hervey & Healing.

Sunningend Works, St. Mark's, for Gloucestershire Aircraft Company.

HAMPSHIRE.

Portsmouth.—Six houses, Dartmouth Road, Copnor, for Messrs. Stokes & Joliffe.

HERTFORDSHIRE.

Watford.—Two shops, &c., High Street, for Mr. W. R. Gunton.

Speedometer Works: extensions for Messrs. North & Sons, Ltd.

ISLE OF WIGHT.

Totland Bay.—Melbourne House: reconstruction (£2,500) for Mr. C. Scobell.

KENT.

Margate.—Ethelbert Hotel, Ethelbert Road: alterations for Messrs. F. Jones & Son.

No. 182 Northdown Road: additions for Mr. A. Strand.

Ramsgate.—No. 21 Addington Street: additions and alterations for Mr. E. K. Dunn.

LANCASHIRE.

Atherton.—Glass Works for the Atherton Glass Bottle Company.

Manchester.—Central Textile Institute, St. Mary's Parsonage: proposed extension.

St. Helens.—Hardshaw Brook Works, Langtry Street: extension for the United Alkali Company, Ltd.

Stretford.—Works, Ashburton Road, for the British Commercial Lorry and Engineering Company, Ltd.

Works, Trafford Park Road: extensions for Messrs. Skipwith, Jones & Lomax, Ltd.

MIDDLESEX.

Southall.—Factory: extension for Messrs. Sanders & Sons, Ltd.

Yiewsley.—Factory for the Onslow Syndicate, Ltd.

Works: enlargement for the Power Plant Company.

NOTTINGHAMSHIRE.

Worksop.—Stables, Primrose Valley Farm, for Mr. E. A. Longbottom.

SOMERSET.

Yeovil.—Factory, Alexandra Road: additions for Messrs. Evans & Robbins.

STAFFORDSHIRE.

Bloxwich.—Foundry, Revival Street, for Messrs. J. & J. Wiggin & Co., Ltd.

YORKSHIRE.

Broomhill.—Twenty cottages, Everill Gate, for the Cottonwood Collieries Company, Ltd.

Halifax.—Ebenezer P.M. Church: extensions.

Hull.—Nos. 45 and 46 Portland Place: alterations for Humber Electrical Engineering Company.

Three houses, Chapman Street, for Mr. G. E. Kirkwood.

Nos. 5 and 6 Milton Street: alterations for Mr. J. Luddington.

Leeds.—Second Northern General Hospital, Beckett's Park: extension.

Rotherham. — Electricity Works: extensions (£400,000).

WALES.

Pontardawe.—Proposed hundred houses for the Clydach Estate Company.

SCOTLAND.

Aberdeen.—No. 15 Bon Accord Street: additions. Messrs. Jenkins & Marr, architects, 16 Bridge Street.

Ayr.—Picture-house, Boswell Park (£3,000) for G. Green Trustees.

Buckie.—No. 28 Sea View Road: alterations for Mr. Murray.

Dundee.—Houses, Castle Street, Broughty Ferry: additions and alterations for Mrs. J. S. Fairweather.

Perth.—St. Paul's Parish Church: session-house.

IRELAND.

Dublin.—The Hibernian Bank, Lower Sackville Street: rebuilding. Messrs. W. H. Byrne & Sons, R.I.A.I., architects, 20 Suffolk Street.

The Munster and Leinster Bank, Abbey Street: rebuilding. Mr. L. A. MacDonnell, M.R.I.A.I., architect, Ely Place.

AT a recent meeting of the Huddersfield Town Council, Alderman Woodhead pointed out that although new workshops were being built there were very few new houses. The town could not long endure the overcrowding caused by the influx of workmen and their families or the evils which overcrowding if long continued always created. He felt that those who placed new factories within the borough recently ought to erect workmen's dwellings at the earliest possible date. The Council were unable to provide anything like the number of houses required.

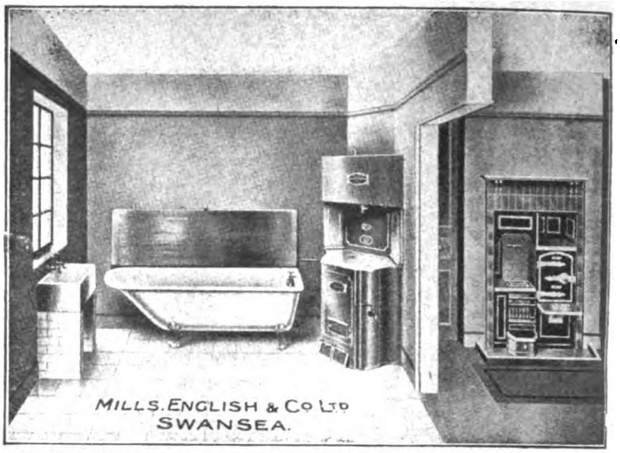
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FORTHCOMING EVENTS.

Wednesday, April 11.

Edinburgh Architectural Association: Annual Business Meeting.

Thursday, April 12.

Architects' Benevolent Society: Annual General Meeting of Subscribers and Donors, at 9 Conduit Street, Hanover Square, W., at 5.0 P.M.

Monday, April 16.

Surveyors' Institution: Paper entitled "The Effect of War Conditions on Urban Property," by Mr. J. G. Head, F.S.I., at 5 P.M.

Wednesday, April 18.

Royal Institute of British Architects: Adjourned Informal Conference on "Architecture and Civilisation," at 3.30 P.M.

Thursday, April 19.

Royal Society of Arts, Indian Section: Paper entitled "The Industrial and Economic Development of Indian Forest Products," by Mr. R. S. Pearson, I.F.S., F.L.S., Imperial Forest Economist, at 4.30 P.M.

Wednesday, April 25.

Manchester Society of Architects: Annual General Meeting at the Society's Rooms, at 6.30 P.M.

Thursday, April 26.

Concrete Institute: Paper entitled "Secondary Stresses in Structural Steel," by Mr. S. Bylander, at 5.30 P.M.

Saturday, April 28.

Edinburgh Architectural Association: Visit to Paisley Abbey, &c., and the Parish Church (the old Abbey Nave); leader, Mr. P. MacGregor Chalmers, I.A., F.S.A. (Scot.), architect of the Restorations.

Wednesday, May 2.

Royal Archæological Institute:

THE URGENCY OF TOWN PLANNING.

Admittedly, one of the most pressing social problems in the "period of reconstruction" after the war, if not the most urgent of all, will be the provision of adequate housing accommodation, particularly in view of the shortage of houses at a rent on the pre-war scale of ten shillings a week or less, the number of which is estimated at some 400,000 or 500,000.

The deficiency extends to both the urban and rural population. In the former overcrowding and squalid conditions of life are at the root of most of the social troubles of our large towns. In the latter the deficiency of cottages in rural districts is one potent cause of the depopulation of the country-side and the deficiency of our home-grown food supply, which handicaps us so severely in our present struggle for existence.

One condition that has arisen during the war activity may be, without the slightest doubt, expected to continue on the return of peace. High wages in the industrial world have come to stay. The farm worker who is now receiving a minimum twenty-five shillings a week will not be content to go back to the eighteen of pre-war times. The unskilled town labourer will not be satisfied with his former five shillings a day. The skilled craftsman also will have his corresponding increase even if he does not quite reach the high level of to-day. Labour's remuneration throughout every grade will be on a higher scale than before the war. We do not say that this higher remuneration will not be earned. Workmen have learnt the folly of "ca' canny" however stridently the trade-union leaders may shout for a resumption of pre-war customs and practices. That shout is merely a tactical move in the coming peace negotiation for adequate remuneration for an increased rate of output. This higher level of earnings must inevitably connote a higher standard of living commensurate with the increased wealth of labour. We use the word "Wealth" advisedly. Wealth does not necessarily consist of an increased number of shillings in the weekly wage. It lies in a higher proportion between earnings and the cost of bare necessaries. Therefore, we emphasise the point that labour will obtain an increase of wealth. The higher standard of living that will be demanded by this increased wealth will sound the knell of the single-room tenement and the forty-houses-to-the-acre slum. Jewellery and fur-coats, pianos and gramophones will not satisfy wealthy labour's aspiration for a higher standard of living. Better conditions of housing will be imperatively demanded.

Herein lies the urgency of town planning. Satisfactory conditions of housing are, we now know, inseparable from wisely conceived and long-sighted prevision of the lay-out of the great shortage of housing accommodation in healthy, convenient, and pleasant towns, suburbs, and villages. The haphazard and come-as-come-may development of building estates leads to congestion and muddle, with the inevitable result of costly "improvement" schemes when the evils of lack of foresight become unendurable. If the millions of money that has been spent on these improvement schemes by our great municipalities had been invested in town-planning, there would have been plenty of money to spare for parks, boulevards, and other amenities.

The first essential and the predominant factor of successful town-planning throughout the whole country is the determination of the lines of arterial roads, and no more lamentable instance of an utter lack of statesmanship in sociology has been witnessed than the virtual turning-down of the whole question by Mr. Walter Long in his reception of the deputation that waited upon him in October last. It was sheer ignorance on that Minister's part to talk of the provision of housing, sanitation and water supply as being of prior importance. For it is not the execution of arterial roads that is urgent. It is the determination of their future lines and scope, their town-planning in short.

So also with the various groups amongst which the half-million cottages are to be distributed. No one expects these to be built or even designed and contracted for during the war. But it is of the highest importance that their disposition should be determined, if not in exact detail, at least on broad and general lines. Their town-planning, in short, is urgent.

Town-planning takes time, and requires full and careful consideration of many often conflicting matters, and if the town-planning of the required housing is to be left until after the war, there will be a grave risk of hideous mistakes, a certainty of failure to achieve the best results. The housing question is not going to be settled in the fashion necessarily adopted in the temporary provision made for abnormal congregations of munition workers. Hutments and hostels will not satisfy the permanent requirements of wealthy labour. Some, no doubt, of the more solidly constructed habitations that have been rushed up may be utilised, probably as a makeshift for a lower grade of workers than those who put up with them under war conditions; but a very large proportion will be scrapped, and many colonies will become the sub-

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ject of "improvement" schemes. We do not suppose, for example, that the Government's enterprise at Well Hall will remain permanently in its utter lack of everything that makes for decent living and social conditions in a community beyond the mere provision of shelter.

The apparently unavoidable waste in war-time improvisation will be repeated over and over again if nothing is considered but Mr. Long's provision of housing, sanitation and water supply. If, in short, town-planning is neglected, and the dumping of cottages allowed to multiply the extravagance and waste of a veritable army of future improvement schemes Town-planning, then, is urgent, and there are plenty of men whose abilities would be more usefully employed, and with better advantage to the nation, in town-planning, than in the addition of "hands" to National Service. These men's brains are worth more to the community than their hands.

NOTES AND COMMENTS.

THE wantonness of the Huns' vindictive destruction of irreplaceable historic monuments from whose proximity he is now being driven fills us with apprehension for the future of those still in his hands. To blow up the donjon and all else that remained of the famous château of Coucy was an act of senseless barbarity that no one but a modern Prussianised German could conceive. The thoroughness with which the fell outrage was consummated must have entailed a fearful cost in high explosive, but even this did not deter the mad rage of the infamous brutes. Now the sumptuous town hall and the noble cathedral of St. Quentin share the fate of the less important but still charming public buildings of Bapaume. Are Laon and Bruges to be sacrificed in like fashion? It is difficult to see how they are to be saved. Protests from all the learned societies in the world are useless, nay, they but add zest to the glee of the Prussian destroyer. Threats of reprisals are likely to be of small effect, for the German still hopes, if not for victory and an enormous indemnity, at least for a draw and a peace on terms that will enable him to escape punishment for his crimes. We should be well content to see the Reichstag building, the cathedral, and the Sieges Allee of Berlin scheduled as hostages, but the necessity for the German Government to hearten its despondent subjects would but emphasise the defiant prosecution of their vindictive destruction.

The movement for the establishment of a Ministry of Health is one that has our complete support. There are two propellent influences, the combined effect of which should bring about the much-needed concentration of powers that are now scattered amongst several departments. Health, in fact, is, departmentally speaking, everybody's business in some particular aspect and nobody's business as a general problem. The Local Government Board, the Home Office, the National Insurance Commission, the Board of Education, the Health of Munition Workers Committee, the Privy Council all exercise activities affecting the public health. The two propellent influences are the Unionist Social Reform Committee on the Administration of Public Health, and Lord Rhondda, the present President of the Local Government Board. The former have a report on the eve of publication in which they record their view that the care of public health is a duty of public authority, and that there are serious faults in its present fulfilment. Their conclusion is that the Local Government Board should form the basis for the new department. Lord Rhondda has arrived at similar conclusions by another road, and, working from the inside of the department, has been able to put forward remedies in a practical form. His present intention is not to create a new department. It is rather to employ and adopt an existing institution, and to simplify rather than to extend.

We have already expressed our opinion, based on personal examination, that the stability of St. Paul's Cathedral is not so seriously endangered as might be supposed from the alarmist views that are put forward, and now once again promulgated by Canon Alexander in making an appeal on behalf of the Preservation Fund. We are not surprised that "experts could not tell when the work of repair would be completed, or what further difficulties would be encountered," and we quite agree that the reverend Canon has "every reason to hope that for many centuries to come the golden cross would continue to send its great appeal over London."

The amount of the fines inflicted at Bootle Police Court on the Western Packing Case Co., Ltd., and their contractor, Mr. William Morrison, for proceeding with the erection of an £11,000 building without a licence from the Ministry of Munitions were ludicrously inadequate. The company were fined £50 and ordered to pay 20 guineas costs. Morrison was fined £5. Plenty of people would be pleased to proceed with buildings, now held up, at an extra cost of ¾ per cent.

We hope none of the architects who are offering their services to the nation under the National Service Scheme will share the experience of the prominent employer of labour in Southwark who put himself down as "organiser." To his surprise he was sent to the docks to help to unload ships. When he protested, it was found that the girl clerk who had dealt with his application form had entered him in the record as "organ grinder."

The ordinary type of provincial picture gallery, largely filled with the discards and failures of London, helps so little in arousing a real interest in art that we cannot but regret the resignation of Mr. Rutter, the curator of the Leeds Art Gallery. Even the lucubrations of the Cubists, the Futurists, et hoc genus omne, have an awakening power that is lacking to safe and dull mediocrity. Hence the value of such exhibitions as Mr. Rutter has given Leeds, which have possessed some point illustrating the art of a few typical painters, or some particular branch of art; exhibitions, in a word, which have had a sufficiently distinct purpose for even the casual visitor to gain some definite notions from them. Constable's art, Japanese prints, posters, theatre scenery, Mestrovitch's sculpture, small sculpture—such subjects as these have been put before the public in an interesting fashion; and, so far as the very exiguous means at his disposal have made it possible, an attempt has been made to give the gallery a less museum-like appearance by placing decorative furniture, porcelain, bronzes, and the like as a foil to the pictures.

In a lecture entitled "The Town Plan and the House: An Opportunity for National Economy," by F. Longstreth Thompson and Ernest G. Allen, published at eighteenpence net by the Garden Cities and Town-Planning Association, the argument for town planning is set out with brevity but at the same time with clarity. Examples of both town planning and cottage design are included with considerable liberality; but as these are illustrative of work carried out or projected by the authors, the brochure partakes strongly of the character of a—perfectly legitimate—professional advertisement.

In a letter to the "Times," Mr. H. Tuer Shawcross, Treasurer of the National Housing and Town-Planning Council, asks that the huts built for soldiers may be handed over "to some representative body," so that the windows, doors, shedding, and weather boards may be utilised in a "well-worked-out scheme of standardised cottage." Herein lies a double faux-pas. The huts have been rushed up for purely temporary use and, as a general rule, are scarcely of good enough quality even for that purpose. Secondly, the standardised cottage would usually be unsuited to its position and to the requirements of the majority of tenants. Even a cottage, if it is to be a real home, must be fitted to its environment and to the needs of its occupant. We are sorry that a gentleman in

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the position of Mr. Shawcross should advocate the waste of money and the set-back to housing reform that would be the inevitable result of the erection of thousands of ramshackle huts as a substitute for much-needed cottage homes.

Pictures of the actual life of the past are essential to a comprehension of the real history of the people and of the art that was part of its manifestation. Hence, no little interest attaches to the "Nottingham Guardian's" account of some quaint reminiscences of old village life in Notts., contained in a paper read by Major T. W. Huskinson at the annual meeting of the Thoroton Society, chiefly drawn from the reminiscences of Mr. Thomas Barnard, of Epperstone, an old gentleman who died in 1873 at the age of 93. Mr. Barnard and his brothers bought the old manor house of the Odingselles, and other property. During the days of George III. and George IV. Mr. Barnard would fill his pocket full of halfcrowns and ride to Doncaster for race week. Epperstone was noted at that time for well-bred horses, and in 1833 the Derby was won by a colt born in a thatched hovel in the village. All the cottagers used to keep cows. The girls who did the milking decorated themselves with oak on May 29, and proceeded to the milking, headed by a fiddler; and later they danced and drank posset in what was still called the posset hole. Except hats, nearly everything worn was produced in the village, and girls of good family could keep themselves by spinning.

A pretty story was told of the early eighteenth century. A little ragged orphan boy named Birch, who used to run about Epperstone, was befriended by a Miss Briggs. She had him educated, and ultimately he became one of George the Second's Court physicians. Contemporary memoirs referred to "the charming Dr. Birch of Richmond." He had his portrait painted by the rising artist, Joshua Reynolds, and sent it to his benefactress. It now hangs in the dining-room of her representative, Mrs. Dufty, a lady of 94, at Epperstone, whose husband inherited the Briggs and Barnard properties. There was strong presumption that the Briggs freehold had come in descent from before the Conquest.

ILLUSTRATIONS.

SOUTH PORCH, KING'S COLLEGE CHAPEL, CAMBRIDGE.

THE original etching by Mr. H. Gordon Warlow, A.R.I.B.A., from which our illustration is taken, is included in the exhibition of the Royal Society of Painter-Etchers and Engravers, to whom and to the artist we are indebted for the opportunity of reproduction.

OCEAN MARINE INSURANCE COMPANY, OLD BROAD STREET.

THE Ocean Marine Insurance Company, Ltd., have erected an imposing building on their site Nos. 2 and 3 Old Broad Street, E.C. The narrowness of the street here and the extreme value of light to all floors has been carefully considered by the architects, Messrs. Thompson & Walford. The building is of steel framed construction with ferro-concrete floors, and it consists of ten storeys. The facade has Italian granite from the pavement to the second floor level (with bronze enrichments), and Portland stone above. The general offices of the Ocean Marine Insurance Company are lined with marble panelling, and Spanish mahogany has been used for the fittings and screens. The flooring of the main office, &c., is in rubber. The upper part of the building, known as "Ocean House," is approached by a separate entrance in Old Broad Street with bronze doorway; the steps and walls of the staircase are carried out in Biancola marble, with Carborundum inlaid ornamentally in to the treads to ensure a non-slip step. An Otis elevator is provided to serve all floors. The offices above the ground floor are in the occupation of Messrs. Gardner Mountain & Co., Ltd., insurance brokers, with the exception of the fourth floor, which is occupied by Messrs. Bach & Mason, merchants. These offices have throughout been fitted to the architects' details. The building contractors are Messrs. Geo. Trollope & Sons and Colls & Sons, of Coleman Street, E.C., with Mr. F. Thomas as clerk of works. The following is a list of some sub-contractors: Steelwork, Messrs. Redpath, Brown & Co.; carving, Messrs. H. H. Martyn & Co.; Italian granite and marble, Messrs. J. Whitehead & Sons; Biancola wall linings and steps, The Art Pavements and Decorations, Ltd.; Lifts, Messrs. Waygood-Otis, Ltd.; Electric light, Mr. F. Geere Howard, who was also responsible for the ventilation; Electric light fittings, Messrs. Osler and Mr. F. Geere Howard; Heating, Messrs. Colls & Sons; Bronze entrances, Messrs. Singer & Co.; Staircase enclosures, The Bromsgrove Guild; Plaster enrichments, The Bromsgrove Guild and Messrs. Searle & Co.; Casements, The Crittall Company; Revolving door, Messrs. H. Elliott & Co. The fire-resisting glass, part of the gun-metal windows, lantern lights, ceiling lights, pavement lights, and stallboard lights were by the British Luxfer Prism Syndicate, Ltd.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

THE conference of the members of the Royal Institute of British Architects, on "New Materials as Influencing Design," was held on March 21. The first portion of the proceedings appeared in our columns last week, and we now conclude the report.

Mr. Percival Fraser said he thought Mr. Searles-Wood should have fixed his period or epoch for what he categorised as new material. Did he call cast iron new material, or did he call mild steel sections new material? So much depended on the influence of material dating from the introduction of wrought iron and mild steel. Up to the present there had been no marked effect on architects by the introduction of different materials or methods for hundreds of years; but from that time up to to-day it seemed to him every decade saw a striking change in construction, and consequently in architecture. If there were such changes in construction he maintained there should be changes in architecture, and in that he disagreed with the conclusions of Professor Pite. Mr. Searles-Wood said that after diligent search he found there were no new materials that by any strength of imagination were capable of influencing design. That was a tremendous statement to make and one that he emphatically disagreed with. His point was that what influenced the shape of construction automatically influenced design, and any attempt to combat that automatic influence on design was bad. It seemed to him that in the past few years there had been a strong attempt to mould the materials to traditional schools of architecture, which he considered bad from the very root. Mr. Searles-Wood had apparently found only one new material, which was corrugated asbestos sheets; but he hoped he would concede that these were a little better than galvanised iron. He had used the slabs mentioned for panels, and such a material was bound to influence design. He had used the Belfast trusses, and another method of construction, which arose partly out of material, was the north light construction for factory buildings. They must reckon on factory buildings in this country in the future, and his impression was that in the past 10 years there had been a tendency on the part of factory owners to beautify their buildings. He found the tendency growing almost daily, for the owners were realising that a good looking building was an asset. He listened to Professor Pite's paper some years ago and it had always been a mystery to him. He said the naked fact of a reinforced concrete building of ordinary purpose was nothing else but barbarous. It seemed to him that to describe a building which illustrated its purpose in the type of its construction as barbarous was an absolute misnomer. "Barbarous" meant what was other than scientific and trained, and a scientifically constructed warehouse or office building was in itself great evidence of science and art. It was a standing monument to the

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true. Then he disagreed with Professor Pite's conclusion that a colour treatment of concrete would not suffice as a satisfactory or as an architectural solution of the problem. Of course, colour treatment alone could not be a solution of the architectural problem, but if the architect had designed his building for colour treatment then the two must run together, and if properly carried out by a qualified architect there was a solution of the problem. In reinforced concrete they had a number of essentials which must affect a building architecturally, and these points had been mentioned by Mr. Dyson. Another material which should have a great influence on architecture was mild steel. Its influence on engineer's work was beyond all calculation. They got constructions like the Forth Bridge, which was a fine example of a new material building up automatically its new style of beauty. They had also, of course, the awful example of the Tower Bridge, where a great opportunity had been missed. To his mind it was somewhat of a slur on the architectural profession that these new materials had not had more effect on architecture. Such a material as mild steel should have revolutionised architectural design; but there was a strong tendency the whole time to distort material to conform to architectural tradition, which he thought was extremely bad, and argued a paucity of ideas, a lack of courage and inadequate scientific training. The possibility of steel construction was demonstrated in Mr. Joseph Pennell's studies of New York and Chicago, and whatever opinion one might form of the architectural treatment of the buildings one must admire the courage with which American architects had endeavoured to use traditional architecture without crippling industrial development. To exhaustively deal with the subject it was necessary to take each material and endeavour to define its possibilities, and from these the architect should ask himself what was the legitimate use of the material which gave him a wider sphere in which to work.

Sir Henry Tanner said that when asked to come to the meeting he remarked that he did not know of any new materials and his opinion was not changed. What they had heard of were adaptations of old materials which had been in use for a great many years. What they had to do was to adapt their old materials to modern uses, and that was what everyone was endeavouring to do. The fact was that nowadays everyone was poorer than before, and things had to be done in a more economical manner. Wood, of course, was becoming almost impossible, and people had to turn their attention to getting something cheap which would serve the same purpose. He did not think it was much good trying to get these hard woods from Africa and other places unless they could get a very large market over here. He had tried Borneo wood, for instance, and got on very well until there was no further supply. As to Mr. Shone's new system of drainage, of course it could not be used without the consent of the local body. If some good sized town would adopt it it might be all very well. He would not wonder if central heating came in London, as he knew some people who were trying to form a company; but the subways which would have to be constructed would be enormously expensive to start with. Of course, reinforced concrete was bound to alter the construction of buildings, but whether it would alter the general appearance was another matter. The tendency was rather to cover them up and treat them the same as a steel frame building. Steel was so costly now that every effort would be made not to use it, and in that respect reinforced concrete had a great advantage, because of the small quantity of steel used. In regard to its use, however, what should be done was to try and get some modification of the building by-laws of London. It was quite unnecessary to have a 25% factor of safety, and he had cut it down to one-third of that.

Mr. Max Garbutt said he was surprised to hear some of the ancient American methods spoken of as either new, or as having anything to recommend them. He recollected 30 years ago an American company advertising stamped tin which was going to convert any building into good architecture. One was greatly hampered in discussing the subject, because one came back to the question "What is art?" The buildings which had been referred to by Mr. Searles-Wood were temporary and ephemeral things. These munition buildings were frankly put up for a few years, and were they architecture? They might be made to look æsthetically satisfactory perhaps; but he did not know if they ought to be regarded as within the scope of such a discussion. Mr. Dyson referred to simplicity of cantilever work as being a virtue of reinforced concrete, although he admitted it had a prototype somewhere. Wherever there was timber architecture the cantilever came in naturally. It was not only India which had it; but the typical bracket he supposed belonged to China originally.

Mr. Francis Hooper said it would not be unsuitable as the outcome of the discussion to ask if it were possible for the Council of the Institute to take any steps so that when peace came they would be prepared with some definite suggestions for getting the methods which had been discussed applied in this country. Under the present by-laws many forms of construction were practically impossible. The subject had been before the Council again and again; but in these times the Government was prepared to do things it would never have done a few months ago.

The Chairman said he agreed with Sir Henry Tanner at being surprised at hearing described as new materials things he had been accustomed to all his life. He thought the only new material they had to deal with which had been introduced of late years was reinforced concrete and brickwork, and that in commercial and public buildings he thought was going to revolutionise building. At any rate in commercial buildings they would not go back to the expensive and bulky walls and structures which they had been accustomed to in the past. The introduction of ferro-concrete had quite altered their outlook on the architecture of these commercial buildings. He agreed with Mr. Fraser that they ought to treat these buildings as entirely distinct from anything else. It would be a great mistake if they attempted in one material to imitate another, and to make what was practically a plastic material like concrete in any way to imitate in its decorative treatment stone or brick or anything like that. They had to treat it entirely and freshly as a new material, and he thought they got a dignity and character out of the mere use of a material, whatever it might be, if it was rightly adapted to its ultimate end and purpose. One speaker raised a point which only time would show if it could be successfully or rightly done, and that was the clothing of these concrete buildings with a veneer of another material. If it was treated openly and freshly as a veneer, and in no way to imitate another construction, he thought it was legitimate; but if it was done to make such a building imitate another it was wrong. They would have to face the fact that for years to come it would be impossible to get wood for building. In one way that was helpful, as it would make them build in a material which was fireproof and economical in space. The marvellous amount of building carried out in the last two years had brought out the ingenuity of architects and engineers in a wonderful way. Numerous buildings had been put up, and the main consideration had been cheapness, rapidity of construction, the use of materials and amount of timber on hand. Much of it was small scantling and of very poor quality. They knew these were not permanent buildings, but they had brought out in the most wonderful way the resourcefulness and ingenuity of their designers. He thought the light reinforced concrete construction would cause them to consider the question of hospital construction in the future. It had always seemed to him with the rapidity of change of plan and treatment, and the advance of medical science, that in the past they had made a great mistake in putting up enormous buildings in a massive and permanent way, to find in a few years that they are out of date. He thought that with the new methods of treatment of surgical cases which the war had necessitated, their hospital planning

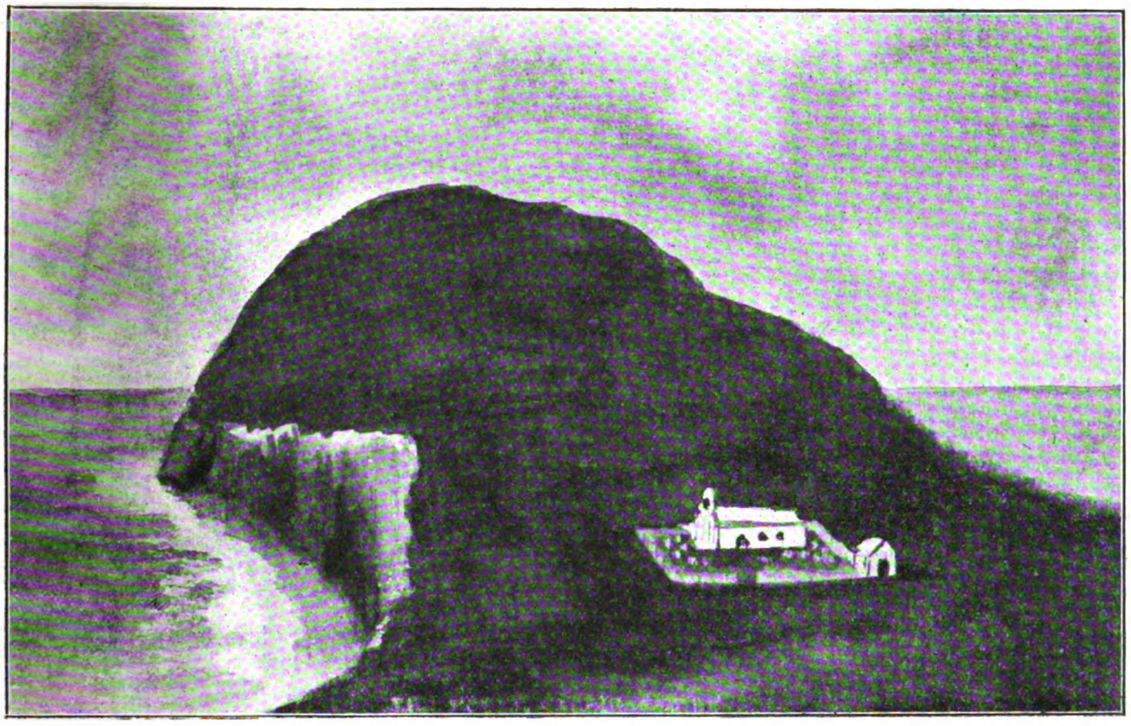
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would be very different in the future, and they would put such buildings up in a much more economical manner, so that when necessary they could be scrapped.

THE ROOD-SCREEN AT MOUNT, CARDIGANSHIRE.

By the Rev. E. Tyrrell-Green.

The church of the Holy Cross at Mount stands on a lofty isthmus, linking to the mainland the "Mount," which rises abruptly from the sea to a height of 250 feet. There are no houses near, and the little whitewashed building, with its attendant stable in the south-east corner of the churchyard, has a very queer appearance in its romantic and lonely situation. Like so many Welsh village churches, the church at Mount is a small rectangular building, without structural chancel, and having a bell-gable at the west end. Unlike most of the old churches of Cardiganshire, however, this one was not rebuilt and spoilt in the last century. The present building goes back, with few changes, to the fourteenth century. It retains its old east window of two lights, and the massive oak beams of the roof remain. The Norman font, too, is still in situ.



THE MOUNT, CARDIGANSHIRE.

During some necessary repairs, owing to damage done by a storm, some very interesting discoveries have been made, to which my attention was recently drawn by the Rev. G. Eyre Evans. The stone staircase, in the thickness of the north wall, which led to the rood-screen, has been opened out, and two considerable portions, besides some minor fragments, of the screen itself have come to light.

In the old days the rood-screens must have formed the most interesting and ornate features of the simple village churches of Wales, but those that escaped the fury of iconoclasts who followed in the wake of the Reformation fell before the so-called restorer of the last century in his desire to remove all that obstructed the view in the interior.

The majority of Cardiganshire churches must once have possessed screens of this kind, and Meyrick, who wrote on the history and antiquities of the county at the beginning of the last century, mentions eight of them as being in existence at that time—viz., at Lampeter, Ystrad, Llangeitho, Lanilar, Yspytty-Ystwyth, Llanddeiniol, Llanwnen, and Llanbadarn Fawr. The interior of the last-named must have been very splendid, for it is a spacious cruciform church, and Meyrick says that there were screens both to the chancel and to the north transept, and that they had been coloured red, green, and yellow, though in his time the colours had become so covered with dirt as to be scarcely perceptible. In five other churches of the county the same writer tells us that some remains of screens were to be seen—viz., at Llanarth, Llansantffraed, Llanrhystyd, Llancynfelin, and Llanafan, and he alludes besides to screens which had previously existed at Llandissilio-gogo and Llangwyryfon—the one at Llangwyryfon, he says, had been pulled down about twenty years before he wrote. All these screens referred to by Meyrick have now entirely disappeared, with the sole exception of a small part of the carved cornice of the one at Llancynfelin, which is still kept in the vestry, as is noted in Eyre Evans' "Cardiganshire," p. 63.

There are, however, traces of former rood-screens (not mentioned by Meyrick) at Llanwenog, where marks still remain in the north and south walls of the interior showing the position the screen once occupied, and at Llandyssul, where the staircase in the wall which gave access to the rood-loft may be traced.

Until quite recently the only rood-beam known to remain, of all those which once adorned the churches of Cardiganshire, was at Llanina. This, however, is not in its proper position. Brought from the old church of Llanina, now submerged beneath the waters of Cardigan Bay, it was placed within the church that was built about a century ago, where it may still be seen stretching across the nave near the west end. This beam is of oak, 16 feet 6 inches in length, and ornamented with a running pattern of conventional vine, in a style that we often find in late fifteenth-century work.

To this relic we are now so fortunate as to be able to add the still more interesting fragments recently found at Mount. The recovered beam is in two parts, and these have been at some period sawn right through horizontally, so that only their upper halves remain, exhibiting the heads and shoulders of some of the figures of saints which adorned the screen. This type of design, with a row of figures in niches surmounted by canopy work is somewhat unusual for a rood-screen, though there is an example of the kind at Llananno Church

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(Radnorshire). It is much more usual for the screen to contain traceried panels, sometimes of very elaborate design, as at Llanagryn (Merioneth), Llanengan (Carnarvonshire), or Patrishow (Breconshire), with a conventional vine pattern along the cornice and the principal beam.

The carving of the beam at Mount appears to be of an earlier type than the usual Perpendicular work found on English and Welsh screens of the fifteenth century, for the foliage and flowers are of simpler form and more free in design than the somewhat stiff patterns, such as the conventional vine, so common in work of the kind. Besides this the pillars which separate the figures are of simple cylindrical form with plain capitals, suggesting that they were modelled on architecture of a comparatively earlier type, whereas in late mediæval work of the kind it was more usual to separate the figures by means of buttresses of the Perpendicular style, as is the case at Llananno. Unfortunately there is too little remaining of the canopies over the heads of the figures at Mount to help us in arriving at the date of the work. Traces of colouring in red and green are plainly discernible. The background of the floral ornament was coloured red, as also were the pillars, while the niches in which the figures stood were painted in green. In one case there are remains of red colour upon the robe of a figure.

Part I. of the beam is 5 feet 10 inches long, while Part II. measures 6 feet 1 inch. The two lengths together, therefore, measure close upon 12 feet. The church itself at the point where the screen must have stood is 17 feet wide, so that 5 feet of the length of the beam are missing, as well as the lower part of the figures. Probably the floral part was at the ends of the screen and the figures in niches occupied the centre part. About a foot, however, of the floral ornament seems to be missing at Part II. B of the beam; this leaves four feet of figures which once occupied the middle between I. B and II. A to be accounted for. Now, as the space from pillar to pillar (measuring from the centre of one pillar to the centre of the next) is approximately a foot in each case, and 4 feet of the beam are missing, there must have been four more figures upon it when complete; eight figures still remain, so the total number was evidently twelve. This makes it almost certain that they represent the Apostles. It is, however, difficult to identify them individually. Most of them hold a staff in the right hand, but two carry open books, and these may be the two Evangelists amongst the Twelve—St. John and St. Matthew. One figure carries an object which looks at first sight like the top of a pastoral staff, but it may be part of a large key, and in that case the holder of it would, of course, be St. Peter. Farther than this we cannot at present go, but it is to be hoped that some more fragments of this most interesting work may yet come to light. One wonders what has become of the other part of the richly carved beam which would show us the lower limbs of the figures, and might contain emblems indicating the saints they were intended to represent. It is quite possible that other parts of the screen may be doing duty in some of the farm buildings which are scattered on the bleak uplands of the out-of-the-way spot.

BY THE MAITAI (NELSON, N.Z.).

THE CAMPERS.

Ethereal space of purple blue
Which deepens to the vision clear,
And caps with colour-glow the view
Of lofty mountains brought so near,
Whose lower slopes are clothed with gold,
"Old gold" of gorse, by nature's hand
And rich brocade now girts the land;
"Old gold" provided all for man.
Reflex of that hid deep within
The gift of love; the bribe of sin.

Sweet children of the lusty brave,
With rounded limb elastic spring;
And voices clear with bell-like ring
Disporting in the crystal pools along the Maitai bed;
From grass or boulder, lithe and gay,
Each joyous sprite in graceful curve
Equipped by breed of iron nerve
Dives headlong in his play.

From screening bush in gay attire
Step gentler sprites, sweet sisters all
Into the silvery stream,
Which glistens as it ripples by
And scatters gems, and swirls along,
The air is charged with witching song
Of unrestrained joy;
(The hum of insect gay of wing,
The note of bird) all lure to sing
Each pretty girl and boy.

F. P.

THE PLANNING OF COTTAGES.*

By T. Alwyn Lloyd, Licentiate R.I.B.A., M.T.P.I., Architect to the Welsh Town-Planning and Housing Trust, Ltd.

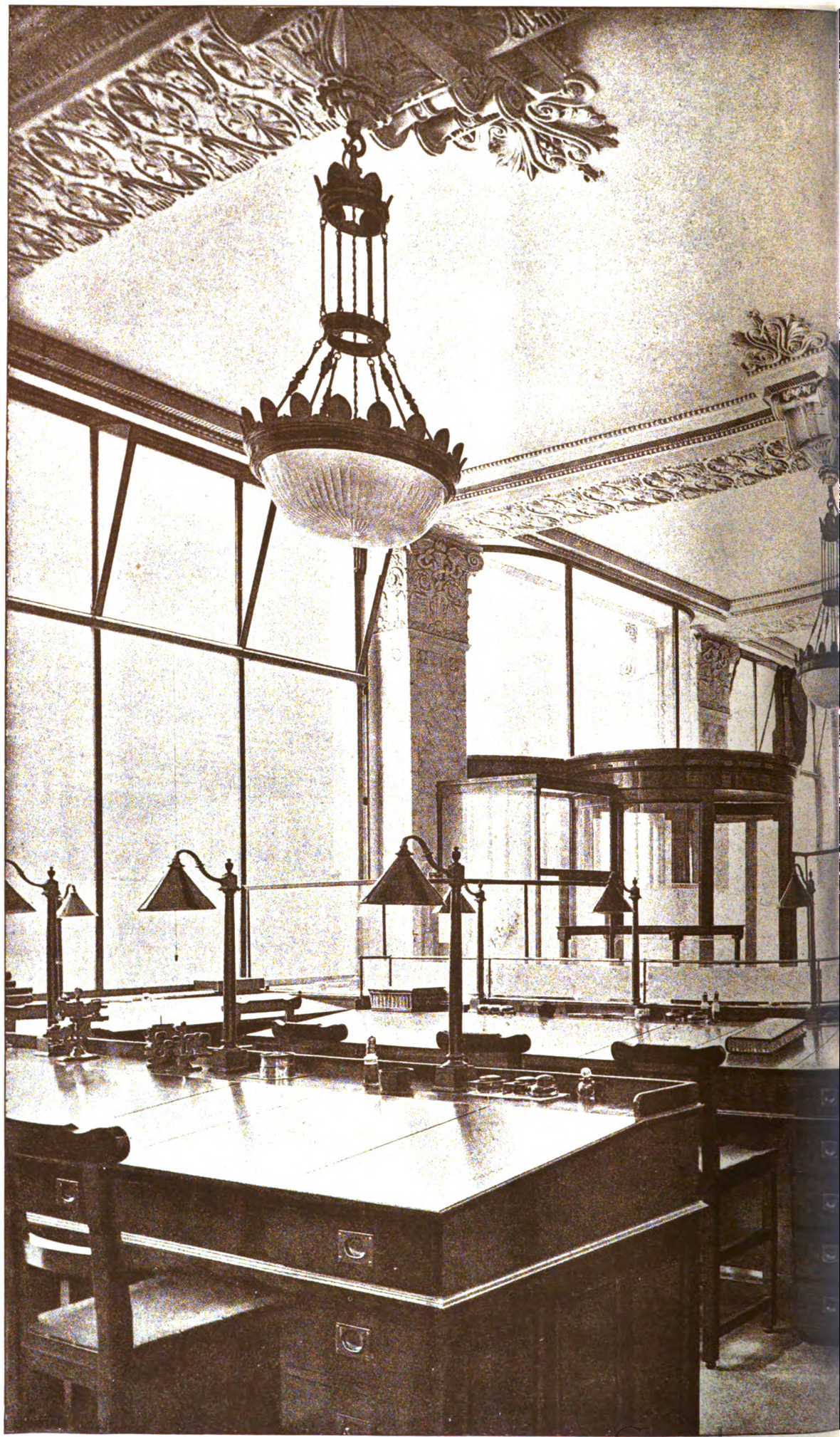
To anyone who considers the housing problem in all its bearings it must be obvious that town-planning alone and the laying-out of estates on right lines are not sufficient to carry us very far along the road of progress. Nor will the mere codifying of sets of model regulations or by-laws suffice if we do not give the fullest consideration to the planning of individual houses and their arrange-

* A contribution to the Welsh Housing and Development Year Book, 1917. (Published by the Welsh Housing and Development Association, 18 Queen Street, Cardiff.)

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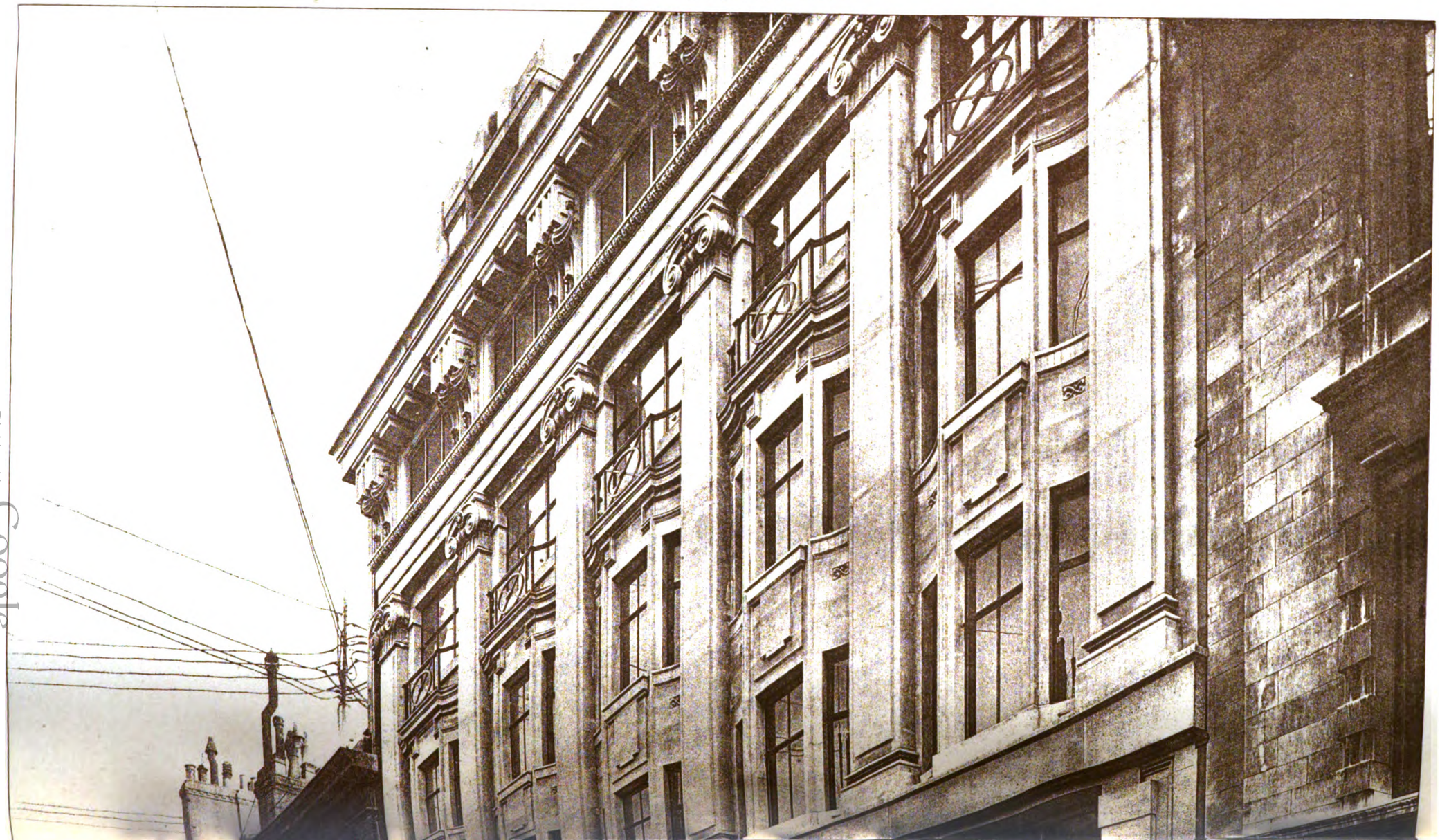
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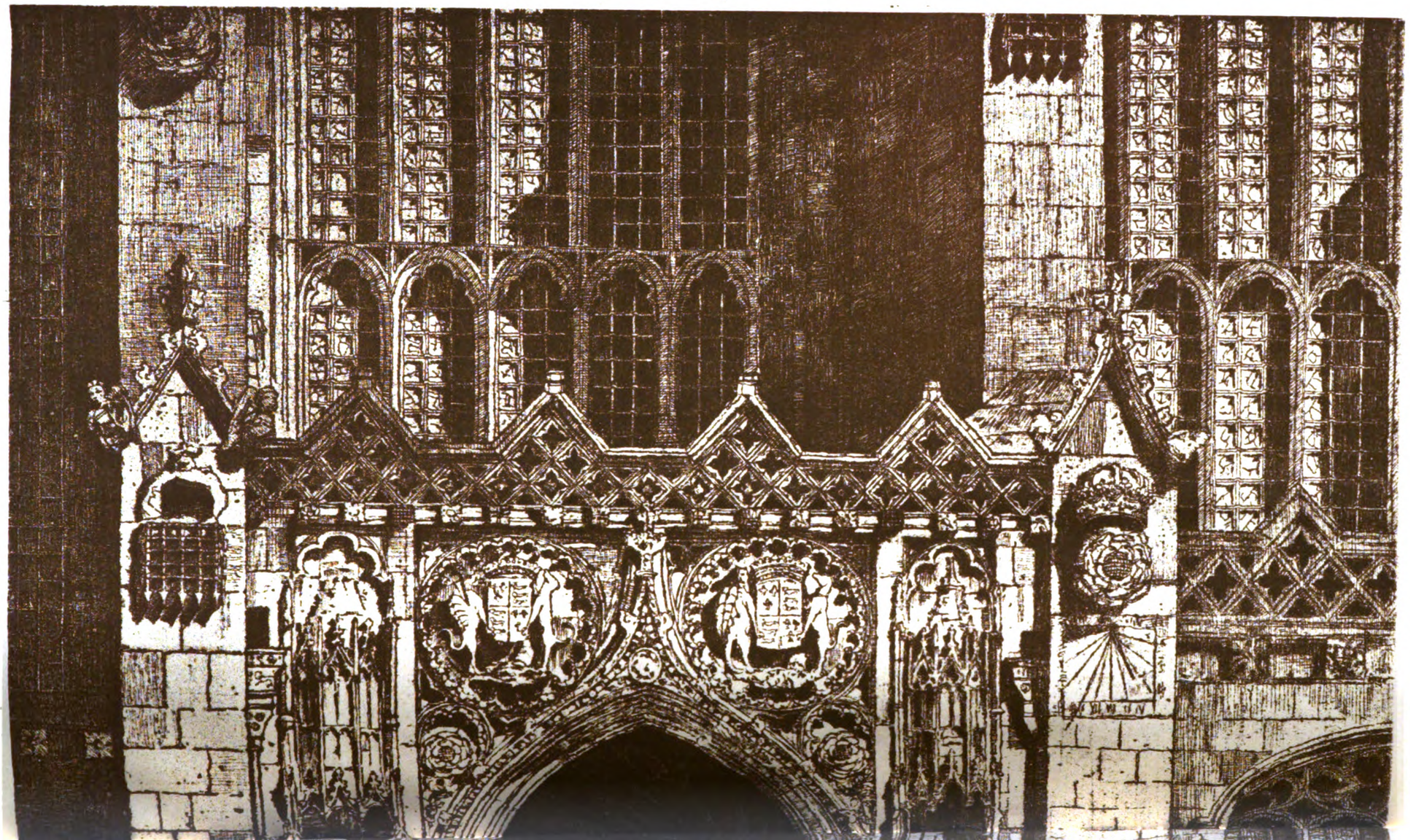
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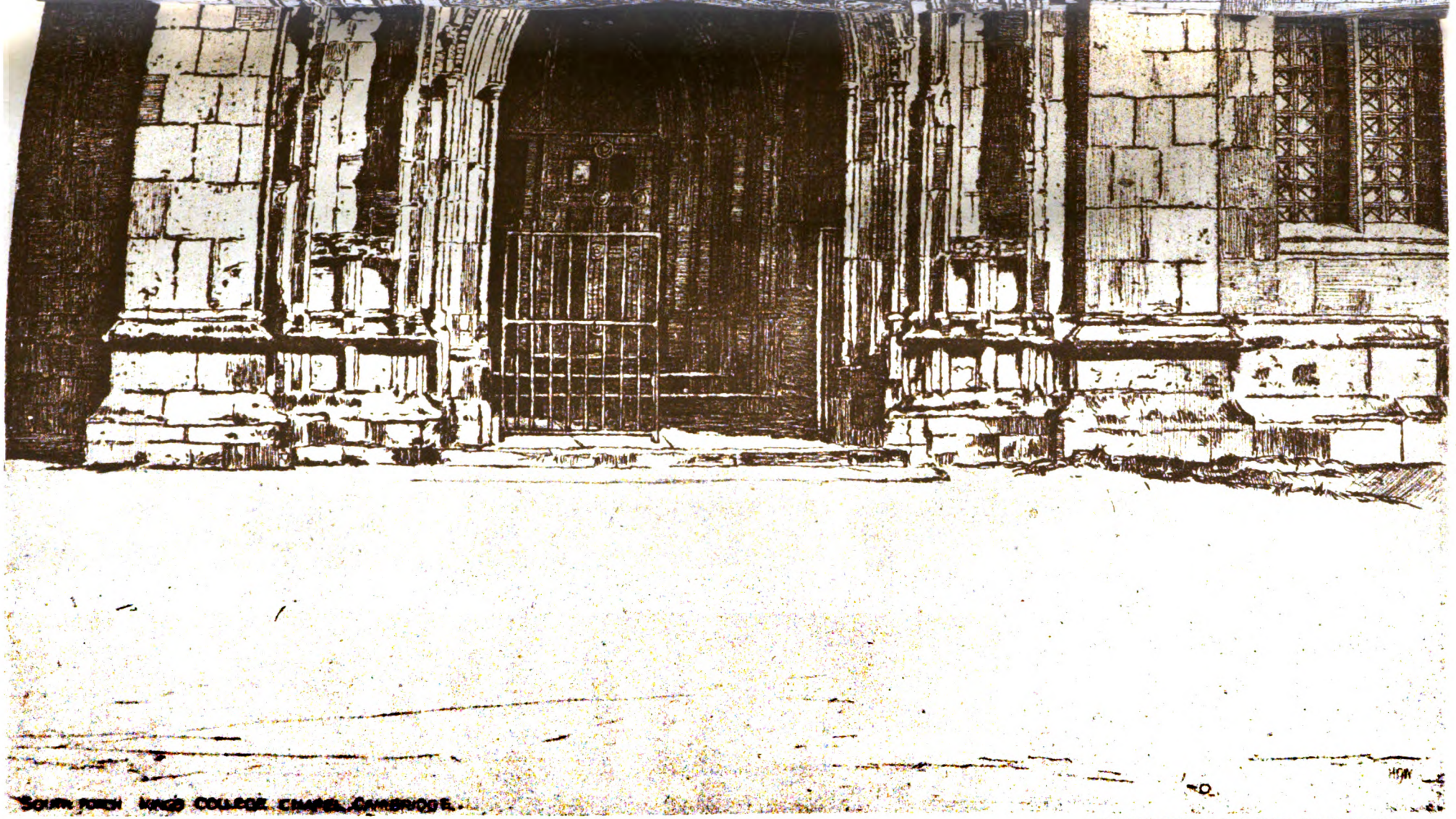
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From an Etching by Mr. H. GORDON WARLOW, A.R.I.B.A.

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ment in relation to adjacent buildings, roads and open spaces.

Building Lines.—The worst of all methods of cottage building is that which places them in long rows immediately alongside the roadway, with no forecourts or garden space. Only a little less objectionable is the practice of setting back the building line some five feet or so from the street. We should aim at setting back the house fronts at least fifteen, and, if possible, twenty feet from the pavement, so as to allow of good front gardens and a certain amount of tree planting in all our urban centres. One of the improvements which housing reformers have advocated in connection with the narrowing of residential roads is that the garden spaces in front of dwellings should be increased proportionately, so that there shall be a distance of at least seventy feet between house fronts.

The Grouping of Cottages.—The development of motor traffic with its consequent noise and dust is tending to make building plots fronting on our main roads less attractive for housing purposes and the newer method is in the direction of grouping cottages in cul-de-sacs, squares or crescents, away from main thoroughfares. The amended by-laws in most town-planning schemes permit the formation of narrower roads and the arrangement of quadrangles or other methods of grouping, provided that not more than a given number of houses are built to the acre.

As a general rule and except in cases where slightly longer blocks are desirable from the point of view of architectural grouping, cottages should not be built more than four to a block. If passageways from front to back are provided between every other house, blocks of six or even eight are permissible, but such blocks should only be built where there is a large amount of space in front and behind the houses. Where dwellings are built in long rows, the provision of back lanes as a means of secondary access is inevitable, but it is generally agreed that these lanes are wasteful in construction and unhygienic in practice. When houses are built in pairs or blocks of four, back lanes can always be dispensed with and a great saving effected in the cost of roads, while the appearance of the property is much improved.

Laying-out of Gardens.—The best effects in the general appearance of a road are often obtained when the laying out of the gardens and a good deal of the planting in them is done by the building owners on the completion of the houses; in this way a unity of treatment and a general tidiness results. These are lacking when each tenant follows his own fancy and perhaps one man has plain turf over his front garden and his neighbour covers his all over with rhododendron bushes. In the same way, the treatment of hedges along the front boundary should be uniform.

With regard to the sizes of gardens, it is desirable to hit on a happy medium of area, for nothing looks worse than a tiny space too small to cultivate, on the one hand, or a long expanse of ground on the other which is too large for the tenant to work by his own unaided efforts. I have found that for Garden Village purposes plots from 25 to 30 feet wide and 100 feet deep, including the area of the building, are ample. In addition to private gardens, it is usually possible to set aside odd spaces for allotments, which the keener gardeners can obtain for a trifling rent.

Garden Fences.—A word might be said here on the question of garden divisions and boundaries. In Wales we usually fence off our gardens by high stone or brick walls and the front boundaries are invariably lower walls with cheap iron railings above them. I am convinced that these walls are not only a needless expense, but they are unsightly in every way and they do more than almost anything else to give our towns that monotonous, "back-yard" appearance, which is characteristic of modern conditions. If hedges or greenery are made the permanent divisions the appearance of the property is immensely improved and the gardens take on a spaciousness and an attraction that is worth striving for. When the hedges are newly planted a low fence can always be erected to keep out dogs and other intruders. I have often noticed that prospective tenants before going to reside in a Garden Village express doubts as to the feasibility of hedge divisions, but in hardly a single case have I heard complaints after the tenants have been in residence for some months and had time to realise the advantages of a "green fence," which can be treated as part of their garden scheme.

The essence of town-planning is the limitation of the number of houses to the acre. The number varies in different schemes from ten to eighteen houses to the acre. It can be taken that an average of twelve is a good one and that the maximum should not exceed fifteen.

Aspect.—The aspect of our cottages is a most important consideration and a consideration which is often quite overlooked by builders and owners. In this country we seem to cherish the delusion that the sitting-room must face the street, whatever be its aspect. Thus, if the house faces south, the front sitting-room or parlour, which is seldom used, receives all the benefit of the sunlight, whereas the living-room or kitchen, in which the average working-class family spends the greater part of its life, faces due north, and is cheerless and dull in consequence. When this back room, as so frequently happens, looks into a confined courtyard formed by the outbuilding and projections, the cheerlessness is intensified and the living-room becomes a kind of cell which has to be lighted artificially for the greater part of the afternoon. Where it is at all possible the aspect of the living-room should be South, S.E., or S.W. This should always be taken into account when sight plans are made and the plans of houses on each side of the road varied accordingly. An east or west aspect is pleasant enough in many ways and a good arrangement when it occurs is to have what is called a "through" living-room, with one window to the east and the other to the west. Walls facing north should be reserved for rooms not often used, for entrances and passages and for the larder. The latter is often thoughtlessly placed on the south side and this entails many trials to the housewife. It is well to try and obtain a southern aspect for at least one of the bedrooms.

Internal Planning.—Let us next consider the arrangement of the space within the dwelling. The disposition of the various rooms and appurtenances is of the utmost importance, because the happiness and comfort of the tenants, particularly of the women-folk, depend to a greater degree than is recognised on the planning of their homes. Too many working women have to spend their lives in inconvenient, badly-planned cottages, with long passages, dark rooms and confined or ill-arranged working places. For instance, it is a common practice in the suburbs of London for the larder to be placed under the stairs near the front door, so that food has to be carried across the hall and through the living-room into the scullery, with much consequent waste of labour and temper. It is always desirable to have the food store entered off the living-room or scullery.

The Parlour Question.—I know that I am on difficult ground when I discuss the vexed question of the parlour. Theoretically, and if the cost of the building were very much lower than it is, I think it will be agreed that a parlour should be provided in every cottage. Apart from containing the much criticised family treasures, the parlour is of great use for the reception of callers and for purposes of study or business by the elder members of the family. Where, however, minimum rents are essential and the space to be planned is confined in area the parlour can usefully be dispensed with, and a large single living-room provided. The front door shall never open directly into the living-room nor should this room be merely a passageway between front and back. Where only one room in addition to the scullery is provided great care should be bestowed on its planning, so that in every sense of the word it can be lived in. The fire-place should be well out of the way of draughts from windows and doors, and of traffic between doors. I think the

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range should be in the living-room and not in the scullery. If it is in the latter, people will often live in the scullery and relegate the living-room to the position of a parlour.

Cottage Working Rooms.—The scullery, or back-kitchen as we often call it, should in its planning and fitting be an efficient working room. Red quarry-tiles are the best flooring, as they can be easily cleaned and do not stain. The sink should be of glazed earthenware, supported on iron brackets, so that buckets can be stored underneath and the floor readily swept. The "Belfast" pattern sinks are the best—that is, 10 inches deep, 24 inches long, and 16 inches or 18 inches wide. These are better than the more usual shallow sinks only 5 inches deep. A draining-board should always be provided at the side of the sink, which should be immediately below the window. A few inexpensive glazed tiles round the sink are a great boon to the housewife and it is also an advantage to have the window sills of the working-rooms of tiles. In urban districts the scullery would usually contain a gas stove for cooking and this should be so placed as not to be affected by the opening and closing of the back door. Where possible the stove should be placed in a fire-place recess and in any case there should be an outlet for the gas fumes. Gas-heated washing-boilers are coming much into use and though they are more expensive in working than coal-heated boilers, they are cleaner and more efficient. What are known as "portable" coal-heated boilers are the most convenient kind, and they take up less room than the old fashioned "set-pot," with its brick facing. The ventilation and steam exhaustion of "portable" and gas boilers is a great improvement on the old method and there is really no objection to having these washing-boilers in the scullery instead of in a separate wash-house, with the extra expense this involves.

Cupboard Accommodation.—Most women complain of the insufficient cupboard accommodation of the newer houses, and this is a very real drawback. It is a good plan to have a combined dresser and cupboard in the living-room, with glass sliding doors, and the scullery should have cupboards and shelving for stores, brushes, and other utensils. Good bedroom cupboards are another essential; where a hanging-cupboard is provided in the best bedroom it saves the tenant the expense of purchasing a wardrobe; a hot linen-cupboard over the cylinder downstairs or in the bathroom is most useful.

Where a separate bathroom is given it should not be cramped, and unless a saving in plumbing is absolutely essential a lavatory basin should be supplied. The bath, whether in a separate room or, in the case of the smallest houses, in the scullery (with table-top), should be porcelain-enamelled iron. This kind is rather more expensive than the ordinary japanned or painted bath, but the appearance and the wear is infinitely superior, and it is much easier to keep clean.

A large number of existing houses have their outbuildings placed very inconveniently. Thus one often has to go into the open air from the scullery to get to the coal-house, and the only w.c. is sometimes quite outside the main building. It is a good plan to have these outbuildings arranged under cover, entered from a back porch, with the scullery door recessed.

Fittings and Decoration.—The unfailing rule in regard to the woodwork and fittings of a house is that they shall be simple and not contain elaborate mouldings or ledges on which dust can collect. In more expensive buildings, such as schools or hospitals, it is feasible to round off the plaster in the corners of rooms, to have specially made "flush" and rounded-off skirtings and other special devices. But the cost of providing all these devices for cottages is practically prohibitive at present. There must be a gradual raising of the standard of comfort and convenience and this will inevitably mean an increase in rents. It cannot be too often emphasised that it is impossible, even in normal times, to erect new houses of up-to-date construction and fittings to compete in rent with the old shoddily-built dwellings. I feel sure that in the future and when the multiplication of garden villages and model houses has demonstrated their many advantages to the workers that they will be prepared to pay a higher rent for the better construction and arrangement of their homes.

As far as decorations and painting are concerned, distempers of light tints, such as cream, grey, or stone colour, should always be used on new plaster. Wall-papers are not very hygienic and they are always liable to stain and peel off when put on newly finished walls.

With regard to paint, many people favour white or cream paint for parlours and bedrooms, and there is a good deal to be said for using light colours, especially if a good coat of varnish is applied, which enables the paint to be cleaned up. White paint is, however, hardly suited to the constant usage of a family living-room or for the stairs and working parts of cottages, and a dark brown or green colour is very serviceable.

Elevations.—The design of elevations of new cottages has been improved a good deal during recent years, but there is still a deal of work to be done before we get away from the perpetuation of dull looking blocks of houses repeated indefinitely, on the one hand, and fussily-proportioned fronts on the other. It is quite a mistake to assume that properly designed elevations need cost more than the other kind, but it does mean taking more trouble, and this many people refuse to do. Little or no conscious ornament is necessary in cottage designing, but right proportions of wall and roof and a uniform arrangement in proportions of doors and windows are essential. There is no need at all for roofs to be broken up into the innumerable gables and dormers which were much in vogue in the earlier model housing schemes. Straight eaves and simple building materials, such as rough facing bricks or cement rendering colour-washed, always look right, and we should not be afraid of adhering to one material for a scheme, be it rough-cast walls or slate roofs. Ample variety can be obtained in the designing of individual groups and in their relation to one another.

The homes of the people should have just as much skill and care expended on their design as the houses of the wealthier classes. In the past the planning of cottages was hardly considered at all, and rows of stereotyped and inefficient "brick boxes" were thought to be good enough for the workers. Let us all—local authorities, reformers, architects and builders—see to it that the many thousands of humble homes to be built in the future are properly designed and carefully planned, so that we may all take a justifiable pride in them.

ENGINEERING STANDARDS COMMITTEE.

THE chairman of the committee, Sir John Wolfe Barry, K.C.B., F.R.S., has accepted the invitation of the Council of the Institution of Civil Engineers to give the "James Forrest" lecture on Wednesday, May 2, at 5.30 in the afternoon.

As the initiator of the organised movement of standardisation in this country, the lecturer has very appropriately taken as his subject: "The Standardisation of Engineering Materials and its Influence on the Trade and Prosperity of the Country."

The growth of the principle of standardisation has been due in great measure to the steady work of the Engineering Standards Committee during the past sixteen years, covering, as it does, most of the branches of engineering practice. The lecturer intends to draw particular attention to the new and important step taken by the committee which has for its object the furthering of British trade abroad through the wider dissemination in the British Dominions and in foreign countries of the British Standard Specifications translated into French, Spanish, and Russian.

Mention will also be made of the local Standards Committees which are being formed in some twelve countries abroad, and lastly of the fact that, when the necessary arrangements can be completed, British Standard Specifications will be available to the public, both in their

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English and foreign editions, at a flat rate of one shilling each, or its equivalent in foreign moneys.

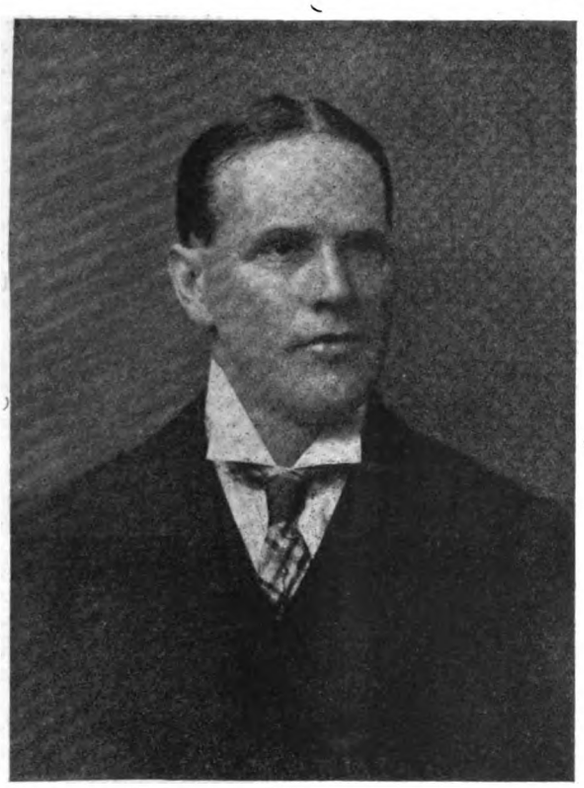
In connection with this new development we are informed that the appeal which the committee has lately issued to the engineering industry of the country has, so far, resulted in the receipt of contributions amounting to over £12,000 from the leading technical institutions, trade associations, and manufacturing firms, and that H.M. Treasury has quite recently intimated the intention to ask Parliament to grant the committee a sum of £10,000 for this special purpose.

We feel sure that all will agree as to the benefits which are bound to accrue to British trade and to the country at large through the widening of the scope of the committee's activities now proposed, and we confidently expect that all those who are interested in the development of the export trade of the country will co-operate with the committee in every way, and thus ensure the complete success of this important movement.

GOVERNMENT OFFICE ACCOMMODATION REPORT.

A signal honour has been conferred upon the architectural profession in the appointment of Mr. Charles T. Ruthen by His Majesty's Government as one of the two honorary inspectors (the other gentleman being Mr. Leonard R. Powell, J.P., of Heatherbank, Chislehurst) to investigate and report upon the use made by the various Government departments of their office accommodation in the London area.

In view of the magnitude of the old-established Government premises, which have been added to by wholesale commandeering of a very large number of great



MR. CHARLES T. RUTHEN.

premises for new war departments during the past two years or more, it requires very little imagination to realise that the task placed upon the shoulders of Mr. Ruthen and his colleague is little short of gigantic. It is pleasing, however, to note, as with so many other appointments made by the present Government, that special qualifications have been taken into account, and the result of the labours of the two gentlemen charged with this important work is bound to be exceedingly beneficial. It is to be hoped that Parliament will see that the reports drawn up by the two new inspectors will be made public, and in this way unnecessary commandeering of premises (if such has taken place in the past) should be put an end to.

Mr. Ruthen is well known in South Wales, where he has been in practice for many years. In addition to having carried out very many important works, he has for years taken a very prominent part in matters connected with housing and town planning. Many of Mr. Ruthen's works have been illustrated in the pages of "The Architect," and a series of articles from his pen, entitled "An Architect's Holiday with a Camera in Northern Italy," appeared in our columns last year.

LONDON ASSOCIATION OF MASTER DECORATORS.

Report of Council meeting held at Holborn Restaurant on Friday, March 16. Mr. M. C. Cowtan occupied the chair.

The minutes of last meeting were read, confirmed and signed.

The question was asked why reports of the last two meetings had not appeared in "The Decorator," and the Secretary explained that it was felt that all the business transacted at both these meetings was of such a nature and at such a state as could not properly be reported, and it was resolved that in future some mention of each meeting should be made in the journal when a full report of the proceedings could not be given.

The Association has at present under consideration a suggestion to co-operate or affiliate with the London Master Builders' Association, but the negotiations are at present at such a stage that there is nothing definite to report until the matter has been further dealt with.

Application having been received in November last from the Operatives' Society for an advance of wages and a revision of the Working Rules, the Secretary was instructed to write to the men's union, asking for their proposals as to the alteration of rules.

The Restricted Occupations Order was considered at great length in conjunction with a memorandum prepared by the Secretary of points which in his view might be laid before the Director General of National Service, and it was reported that as the result of an emergency meeting held to consider the matter, the Secretary had written to the Director General of National Service, asking him to receive a deputation on the subject.

It was unanimously resolved to confirm the action of the said meeting and a deputation of six representative members of the trade, including the Secretary, was appointed.

It was also agreed that in the event of the deputation not being received a memorial based upon the aforesaid memorandum should be presented to the Director General.

It was also agreed to co-operate with the National Association in the matter, provided the London Association retains its right to nominate its own representatives in any deputation which may be formed.

The Secretary was thanked for the able manner in which he, a layman, had prepared the memorandum dealing with the hardships which would be inflicted upon the trade under the Order, and he undertook to embody certain suggestions which had been made at the meeting for the inclusion of further points in same.

A cordial vote of thanks to the President ended the proceedings.

The Manchester City Council has appointed a special committee to inquire into housing conditions in Manchester; to ascertain the causes of the present shortage of houses, past methods of providing houses, and the accommodation necessary adequately to ensure the comfort, health, and moral well-being of the community; and to make definite recommendations whereby a sufficient provision of suitable houses might be secured. The committee will consist of three members each nominated by the Improvement and Buildings, the Paving, Sewering, and Highways, and the Sanitary Committees, with the addition of Councillor Day and two other members of the Council.

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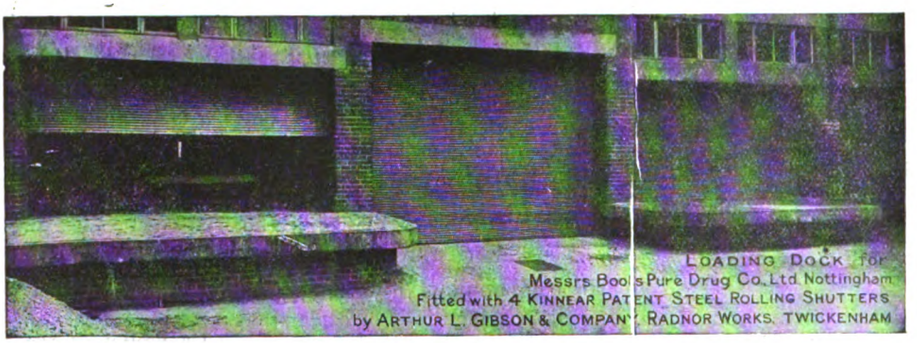
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BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders, the address is, as a rule, local.)

ENGLAND.

BEDFORDSHIRE.

Luton.—Factory, Windsor Street: additions for Messrs. Brown & Green, Ltd.
Nos. 31 and 33 Williamson Street: rebuilding for Mr. W. R. Jeakings.
Warehouse, &c., Dallow Road, for the Davis Gas Stove Co., Ltd.
Works, Kimpton Road: extension for Vauxhall Motors, Ltd.
Chemical works, Kingsway: addition for B. Laporte, Ltd.
Workshop, Bury Park Road. Mr. E. L. Barber, builder.
Workshops, Chapel Street: extension for Mr. F. Moody.

DERBYSHIRE.

Derby.—Proposed infirmary, Uttoxeter Road, for the B.G.

DEVON.

Torquay.—"Fernlea": alterations for Mr. Snape.
"Kirtonville": additions for Miss Strong.

ESSEX.

West Ham.—The "Lord Gough" p.h., Plaistow Road: proposed addition and alteration. Mr. S. A. Yeo, A.R.I.B.A., architect, 2-6 St. John Street, London.
Proposed workshop, Normandy Street, Custom House. Messrs. Newman & Jacques, R.I.B.A., architects, 2 Fen Court, Fenchurch Street, London.

KENT.

West Malling.—The Manor House: conversion into Convalescent Home. Mr. H. G. Gamble, A.R.I.B.A., architect, Bank Street Chambers, Lincoln.

LANCASHIRE.

Accrington.—Stables, Ormerod Street, for Messrs. Howard & Bullough, Ltd.
Irlam.—Nos. 33 and 35 Brereton Villas, Liverpool Road, Cadishead: conversion into shop for the Partington Steel and Iron Co., Ltd.
Wesleyan Chapel: proposed Sunday School.

NORTHUMBERLAND.

Newcastle-on-Tyne.—Proposed U.M. Church, Walker.

SURREY.

Barnes.—Nos. 311 and 313 Upper Richmond Road, Mortlake: proposed additions for Mr. G. E. Sturgis.

YORKSHIRE.

Holmfirth.—Proposed twelve Council houses.
Huddersfield.—Technical College: extensions.
Selby.—Proposed public elementary school (500 scholars) for the Managers of the Selby Abbey National Schools.
Sheffield.—Motor garage, Gower Street, for Messrs. Kayser, Ellison & Co., Ltd.
Offices, Sheffield Road, for Messrs. T. Firth & Sons, Ltd.
Warehouse, Harvest Lane, for Messrs. W. Turner & Sons, Ltd.
Workshop, Hicks Street: additions for Messrs. D. Ashton & Co.
Workshops and offices, Sark Road: additions for Messrs. J. H. Dickenson, Ltd.

SCOTLAND.

Aberdeen.—No. 36 Canal Road: alterations. Mr. J. Rust, architect, 224 Union Street.
Two houses, Salisbury Place. Mr. George Watt, F.R.I.B.A., architect, 17 Union Terrace.
Gordon's Mills: manager's house: additions. Mr. W. E. Gauld, F.R.I.B.A., architect, 11A Dee Street; also
Store, Old Ford Road: addition.
Coatbridge.—Works, Kipps, for the Scottish Iron and Steel Co., Ltd.

PATENT SPECIFICATIONS.

Selected by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

No. 11,106 (May 5, 1914).—C. R. W. Baldwin, 29 Cymmer Road, Caerau, Bridgend. Safety catch gear or safety retaining mechanism for mine cages, lifts for buildings and the like.

104,361 (Feb. 25, 1916).—Richard Ames, 145 Ditchling Road, Brighton. Apparatus for aerating sewage and other foul liquids.

104,407 (March 24, 1916).—The British Thomson-Houston Co., Ltd., 83 Cannon Street, E.C., and W. L. Wise, 28 Paradise Street, Rugby. Controlling mechanism for electric motors operating cranes, lifts and the like.

104,443 (June 27, 1916).—R. W. McLachlan, 389 Hertford Road, Enfield Highway. Shade holders for gas or electric light fittings.

104,449 (July 12, 1916).—W. J. Simpson, 38 Copthall Gardens, Twickenham, S.W. Portable house and the like.

104,451 (Sept. 6, 1916).—Amelas Holliday, School House, Street Lane, Gildersome, near Leeds. Ventilation of water closets.

104,489 (Dec. 13, 1916).—H. A. Prettejohn, Molescombe, Kingsbridge, South Devon. Means for ventilating rooms in buildings.

104,472 (Sept. 27, 1916).—J. N. Honeyman, "Roslyn," Orchard Road, Linthorpe, Middlesborough, and P. H. Watson, Roslyn House, Hartlepool. Method of and material for surfacing roads and ways.

104,482 (Nov. 21, 1916).—P. J. Rouquette, Fauché Hospital, Bordeaux. Water or like closets.

104,103 (June 6, 1916).—W. C. Johnson, Broadstone Farm, Colemans Hatch, Sussex. Fencing.

104,149 (Dec. 15, 1916).—F. A. Andrews and T. G. Allen, 106 Victoria Street, Westminster. Ornamental shades and reflectors.

104,154 (Feb. 5, 1917, dated under International Convention Feb. 16, 1916).—E. Imer-Schneider, 8 Boulevard James Fazy, Geneva. Process for the manufacture of artificial stone slabs.

104,236 (March 10, 1916).— Frederick Evans, 37 Gordon Road, Seaforth, Lancs., John Gibson, 23 Fernhill Road, Bootle, Lancs., and John Gibson, 256 Gloucester Road, Bootle. Machinery or apparatus for joining or jointing together tongued and grooved boards.

104,242 (March 20, 1916).—Thomas Duff, corner of William and Dudley Streets, Melbourne, West, Victoria, Australia. Catch for sliding doors.

104,249 (April 11, 1916).—John Dempsey, 6 St. Paul's Terrace, Cavendish Square, Belfast. Brushes.

Any of the above specifications may be obtained from J. D. Roots.

A FACULTY, authorising the deposit under the floor of the crypt of the Church of the Annunciation, Bryanston Street, of an urn containing the cremated remains of Vice-Admiral Sir George Warrender and the erection of a memorial tablet in the church, has been granted by the Chancellor of the Diocese of London. Sir George Warrender, who died on January 8, expressed a desire that his body should be cremated. Placed in the north wall of the side aisle the memorial tablet bears the following inscription: "To the glory of God and in memory of Vice-Admiral Sir George Warrender, Bt., K.C.B., who died January 8, 1917. He commanded the 2nd Battle Squadron, 1914-15, during the Great War. This memorial is erected by Lady Maud Warrender.—R.I.P."

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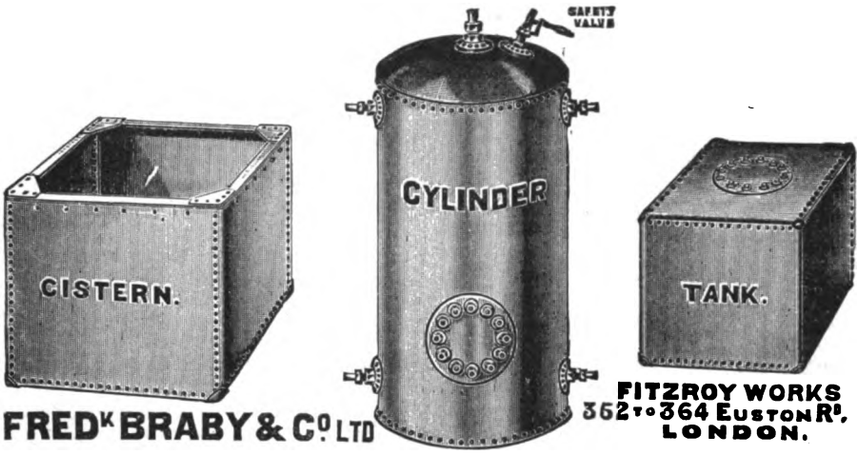
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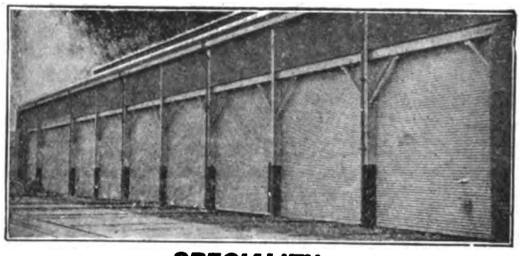
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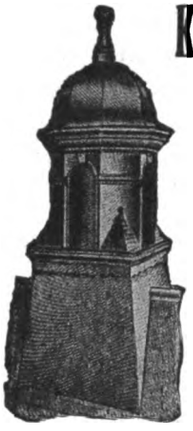
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THE ARCHITECT

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FORTHCOMING EVENTS.

Monday, April 16.

Surveyors' Institution: Paper entitled "The Effect of War Conditions on Urban Property," by Mr. J. G. Head, F.S.I., at 5 P.M.

Tuesday, April 17.

Institution of Civil Engineers: Annual General Meeting of Corporate Members only, at 5.30 P.M.

Wednesday, April 18.

Royal Institute of British Architects: Adjourned Informal Conference on "Architecture and Civilisation," at 3.30 P.M.

Royal Society of Arts: Paper entitled "The Application of Coal Gas to Industry in War Time: its National Importance," by Mr. Horace M. Thornton, M.I.Mech.E., at 4.30 P.M.

Thursday, April 19.

Royal Society of Arts, Indian Section: Paper entitled "The Industrial and Economic Development of Indian Forest Products," by Mr. R. S. Pearson, I.F.S., F.L.S., Imperial Forest Economist, at 4.30 P.M.

Friday, April 20.

Town Planning Institute: Discussion on "Road Construction and Improvements by Means of Town Planning Schemes," at 6 P.M.

Wednesday, April 25.

Manchester Society of Architects: Annual General Meeting at the Society's Rooms, at 6.30 P.M.

Thursday, April 26.

Concrete Institute: Paper entitled "Secondary Stresses in Structural Steel," by Mr. S. Bylander, at 5.30 P.M.

Saturday, April 28.

Edinburgh Architectural Association: Visit to Paisley Abbey, &c., and the Parish Church (the old Abbey Nave); leader, Mr. P. MacGregor Chalmers, I.A., F.S.A. (Scot.), architect of the Restorations.

A MINISTRY OF HEALTH.

LIFE and its values defy any scale of measurement. The ideal of a healthful community, enabled to complete the full measure of its allotted span, able to bring the unblemished perfection of its physical powers to all the purposes of its social and industrial existence, freed more and more from the waste and suffering from disease and the diminution of its common birthright—that is a standard under which the highest philosophy will not hesitate to enrol itself, independent of all commercial calculation of profit and loss. In other words, a high standard of health for its own sake must be one of the fundamental aims of collective authority.

Whilst the human aspect of the health of the community under its control should thus be the concern of every worthy Government, the economic side of the case must also weigh strongly with those whose function it is to guide the affairs of the nation. It is scarcely disputable that efficient health legislation and control is, from the most strictly financial and businesslike point of view, a national investment producing the most liberal returns for work and money.

Indeed, it is the economic aspect of public health that has induced the participation in remedial health measures by governing authority in this country. The principle of interference by authority in sanitary administration on economic grounds is thus expressed in the fifth annual report (1839) of the Poor Law Commissioners: "All epidemics and all infectious diseases are attended with charges, immediate and ultimate, on the poor rates. Labourers are suddenly thrown by infectious diseases into a state of destitution, for which immediate relief must be given. In the case of death the widow and the children are thrown as paupers upon the parish. The amount of burdens thus produced is frequently so great that it is good economy on the part of the administrators of the Poor Law to increase the charges for preventing the evils which are ascribable to physical causes."

In the light of further experience and thought we have now come to realise as conditions conducive to pauperism bad housing, deficient light and air, hygienic ignorance, and the neglect of incipient weakness and disease in the youthful subject. We realise, moreover, that the crippling of every worker affects the State, not only with the cost of his maintenance, but with the sacrifice of his productive power—that the communal fisc, in the widest sense, has not only incurred an expenditure, but lost a revenue.

Already, before the war, far-sighted employers of labour have realised that dividends depend upon the health and happiness of their employees, and that these in turn are promoted by such improved housing conditions as are to be found exemplified in Port Sunlight and Bournville, the beneficial effects of which upon their inhabitants have been proved beyond gainsaying by careful comparison between the school children of these model communities and corresponding residents in the neighbouring cities of Liverpool and Birmingham.

The influence of healthy conditions upon the efficiency of workers has been overwhelmingly demonstrated at the present time by the experience of the Ministry of Munitions, with its two million employees working and worked with the aim of the highest possible output under the strenuous call of manufacture for war. The valuable series of monograph reports produced by the Health of Munition Workers' Committee, appointed "to consider and advise on questions of industrial fatigue, hours of labour, and other matters affecting the physical health and physical efficiency of workers in munition factories and workshops" reveal the extraordinary defects of our industrial system, both in its acquaintance with the scientific laws of health, and in its practical conformity to hygienic truth. "It must be admitted," the Committee observe, "that in England, and no doubt to the detriment of both health and wealth, management based upon the experimental science of industrial fatigue is far less common than in the factories and business concerns of America and of Germany." They allude to "the surprising uncertainty commonly found in this country, even where professional knowledge is to be expected, with regard to the proper solution of some of the most elementary practical problems of labour management."

It is therefore abundantly clear that both on the score of humanity and on that of expediency the health of the nation should be a matter of primary concern to the Government of the country. We have indeed in a measure recognised this principle, but, with our usual faculty for muddling through, by a haphazard subdivision of responsibility and functions amongst a number of departments and authorities. A full and lucid exposition of this intricate subdivision is given in a report of the sub-committee of the Unionist Social Reform Committee which, in February 1914, was set up to inquire into and review the administration of Public Health with a view to its improvement. This report is now issued in the form

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of a pamphlet* entitled "The Health of the People," and is a scathing revelation of the present administrative chaos connected with Public Health.

Not only are there the medical staffs and institutions of the War Office and Admiralty, the Post Office and the Ministry of Munitions, restricted to their respective employees, but there are no less than six Government Departments which exercise public health functions of a general range. These are the Local Government Board, the Insurance Commission, the Home Office, the Board of Agriculture, the Board of Education, and the Board of Trade. Not only so, but different functions have been thrust upon different offices in haphazard fashion, according to the convenience of the moment. Thus, for example, medical service after medical service has been piled upon the Home Office, and no attempt has been made to use existing machinery, so that we reach the absurdity of an office which has eight separate Public Health staffs.

Then there are also a bewildering variety of Local Authorities, whose spheres of action are often overlapping and at cross purposes. County Councils, County Borough Councils, Urban or Rural District Councils, Boards of Guardians, Parish Councils, Insurance Committees, and the Local Education Authorities, all of whom have some function or other in relation to Public Health.

Needless to say, this complicated subdivision of administrative functions has involved in chaos the safeguarding of the public health by the State, and the Unionist Committee in their report "The Health of the People" discuss the appropriate and preferential lines on which the obvious necessity of a Ministry of Health may best be met. They come to the conclusion that a concentration of Health functions might be achieved by the following alternative methods: (1) All Health functions might be concentrated in the Local Government Board; (2) all Health functions might be handed over to the Insurance Commission; (3) a totally new Department of Health might be created; or, finally (4), some compromise among these courses might possibly be found to offer the best immediate policy.

Whilst recognising that reasonable objections may be advanced to each of the three former alternative methods, the Committee finally express a preference for the Local Government Board as a basis for the new Department. They propose, however, that for the present certain functions should be left to some of the Departments by which they are now exercised, and that co-ordination should be promoted by the establishment of an Advisory Committee or Council, consisting at least of the head medical officers from all the Departments in the State which in their administration might affect health. The object of the Council would be to ensure that the Health Department should be in possession of complete knowledge of everything which was being done or contemplated touching health, and that a common policy on matters of health should be adopted by the Government Departments concerned.

The work of architecture is so intimately concerned with the advancement of the public health that the substitution of order for chaos in the administration of Government Departments renders the possibility of a directing Ministry of Health a matter of supreme interest.

NOTES AND COMMENTS.

ALTHOUGH the action of his visitors strongly resembles that of carrying coals to Newcastle, Lord Rhondda has promised to receive soon after Easter a deputation from the National Association of Insurance Committees who wish to press upon him, among other matters, the need for improving the housing conditions of this country. Since Lord Rhondda has been at the Local Government Board he has devoted a great deal of his time to the housing question, which, as was recently stated in the House of Commons, he regards as the most pressing of the after-war problems before his Department. The Local Government Board is now engaged on the preparation of measures directed to this object.

Special favour—which, however, no one surely would resent—is to be accorded to the owners of property in the devastated area of Dublin, for the Chief Secretary, replying to a Dublin deputation in connection with the relief of distress and unemployment in the city, promised that steel and other building materials would be immediately released by order of the Ministry of Munitions to enable property owners to proceed at once with the work of rebuilding destroyed areas. He also stated that the Treasury had consented to release money as required for the purpose of Dublin housing schemes, and Sir Henry Robinson, Vice-President of the Local Government Board of Ireland, has stated that the sum of £100,000 would be made available immediately for carrying out housing schemes in Dublin.

Earl Beauchamp has lent for exhibition at the Victoria and Albert Museum the important collection of miniatures and snuff-boxes from Madresfield Court. The exhibition contains 372 miniatures in water-colour, oil, and enamel, by English and foreign artists, chiefly of the sixteenth, seventeenth, and eighteenth centuries, together with thirty-one snuff-boxes, chiefly French, and dating from the eighteenth century. It is arranged in Room 84, adjoining that in which the miniatures lent by the Duke of Buccleuch are exhibited, and visitors will find in the collections shown in these two rooms representative examples of the work of practically every English miniature artist of importance of the sixteenth, seventeenth, and early eighteenth centuries. Owing to the difficulty of securing paper it has not been possible to issue an illustrated guide or catalogue, but official negatives have been made of many of the miniatures in the collection, prints from which will be obtainable at the usual prices upon order at the photograph stall near the main entrance. The Beauchamp miniatures will remain on exhibition until the end of November.

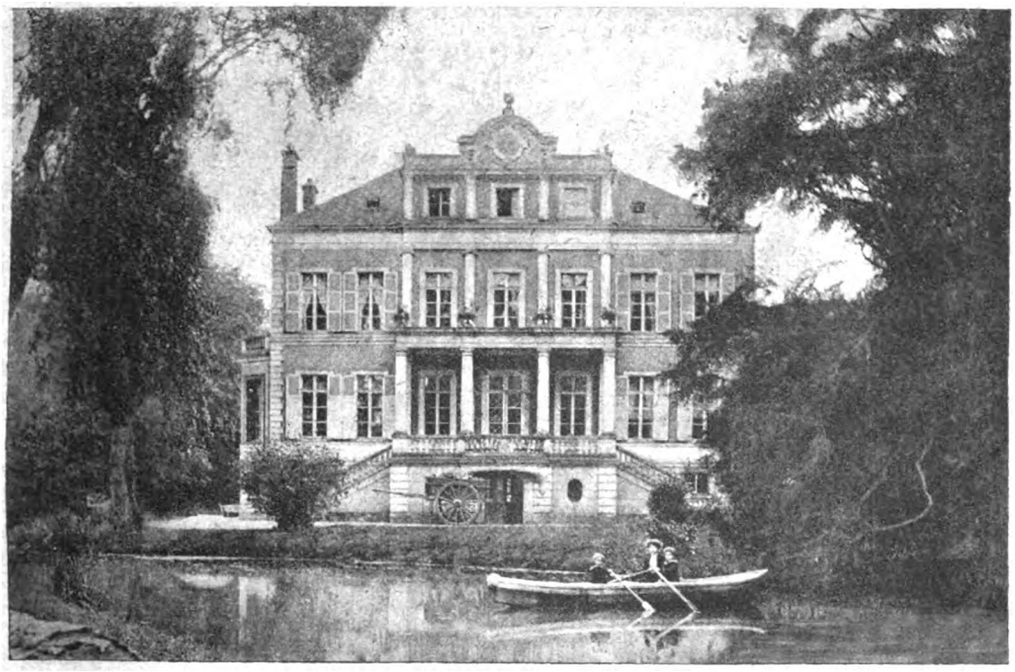
It is all to the benefit of architecture that lectures on even so technical a subject as the science of building should be addressed to the lay public, as in the case of that entitled "Some Elements of the Science of Building," delivered by Mr. W. E. Vernon Crompton at the March general meeting of the Hampstead Scientific Society.

One of the choicest collections of Whistler's lithographs, that formed by the late Mr. W. H. H. Jessop, the eminent oculist, will be sold at Christie's on June 5, an announcement that will gladden the hearts of connoisseurs eager to add rare examples to their own collections. Among the prints are signed impressions of the "Courtyard, Chelsea Hospital," the "Gants de Suède," the "Little Nude Model Resting," "Chelsea Shops," "The Little Balcony," and the "Little Nude Model Reading."

The London County Council, at its final meeting before the Easter recess, reaffirmed its resolution to the effect that no system of Government grants for education will be satisfactory unless London receives thereunder treatment no less favourable than the rest of the country generally, and that such grants should in no case be less than 50 per cent. of the net expenditure. Further, the opinion was expressed that (1) the first step towards educational reconstruction after the war should be a proper rearrangement of the incidence of educational expenditure between the Exchequer and the local authority; (2) the system of variable grants and the varying bases upon which existing grants for different forms of education are calculated are no longer suitable to existing conditions; and (3) the grants in respect of education should be based on a fixed proportion of the expenditure properly incurred for all forms of education under a scheme or schemes approved by the Board of Education.

* "The Health of the People." A New National Policy. (London: The Argus Printing Company, Ltd. 3*d*.)

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THE CHATEAU OF PHILIOMEL, LILLERS

The illusory nature of the evidence of boreholes, unless applied with much skill, judgment, and thoroughness, was illustrated by the proceedings in an action against the Bognor Urban District Council by a contractor for some sewage works. In this case one borehole only was sunk, and the contractor, as well as the Council, seem to have assumed that this was enough. Not surprisingly, the evidence as to the nature of the subsoil was inaccurate as to the general character of the site. The unfortunate contractor had to bear the loss occasioned by the extra cost of the work involved, being unable to saddle the District Council with a warranty as to the nature of the site.

At the last meeting of the Birkenhead Town Council it was announced that Sir William Lever was loaning a part of his valuable collection of works of art to the Birkenhead Corporation to be shown in the Art Gallery. Birkenhead is fortunate in obtaining a large proportion of the valuable collection at Hulme Hall, Port Sunlight, consisting of oil and water-colour paintings, and the whole of Sir William's collection of Wedgwood china, one of the most important collections in Europe.

There has been hung in the north-west tower of Ripon Cathedral a painting by Streator, Sergeant-Painter to King Charles II. It was painted as a reredos for the choir about the year 1663, and represents an Ionic temple. The following reference to the painting is found in a book entitled "Through England on a Side-Saddle in the Times of William and Mary," by Celia Fiennes: "The town stands on a hill, and there is a good large stone-built church, well carved; they call it a Minster. There is a very fine painting over the altar. It looks so natural, just like real crimson satten, with gold ffringe-like hangings, and severall rows of pillars in isles on either side, which looks very natural." The painting was put away in one of the towers in the days of Blore, the architect, who erected another reredos in its place. It has now been brought out and hung in the north-west tower as an interesting piece of scene-painting of the period.

ILLUSTRATIONS.

FERRARA: PALAZZO MAGNANINI AND PALAZZO DEI DIAMANTI.

DESCRIPTIONS of the buildings shown in our illustrations will be found in the article by Professor Alfredo Melani on the Palaces of Ferrara.

THE PALACES OF FERRARA.

By PROFESSOR ALFREDO MELANI.

A SILENT CITY AND THE CUSTOMS OF THE PRINCES.

FERRARA, a city sacred to beauty, magnificent at the time of the Renaissance, has since been reduced to silence, almost as if consumed by a force that it has long found insupportable. Indeed, to compare the Ferrara of to-day with Ferrara under the dominion of the House of Este is as inappropriate as the comparison between a river and a brook. Such has also been the fate of other Italian cities: Mantua, Rimini, Pienza, Urbino, though not of Florence, Milan, Genoa, Venice and Rome. Thus Ferrara, after slowly growing richer and richer in ornamentation during the fifteenth and sixteenth centuries, then became absorbed in memories of the past, and was powerless to forge, in modern times, a single link to add to the long chain of her glories. For an explanation of this phenomenon of inertia, after an epoch of splendour, we must inquire into the general history of Italy at the time when *il bel Paese* was subdivided, its territory being in the hands of princes and dukes who used to fight one against the other in defence of their own possessions, and who opposed the warlike spirit to the spirit of culture. In this way, a rivalry, fed by greed and jealousy, was instigated and art flourished side by side with the fighting instinct, and even side by side with perversity. There were, at the time of the Renaissance, many Italian princes who were fond of study, and therefore encouraged it. These princes were cultured, though unworthy and even cruel at heart. An example is to be found in Ercole I. (1431-1505), who surpasses many princes of his time. Brave and cowardly, barbarous and refined, willing to sacrifice anything for the beauty of his State, Ariosto was able to write of him, with reference to Ferrara (Canto III. of "Orlando Furioso"):

E l'ornerà di templi e di palagi,
Di piazze, di teatri e di mille agi.

Alfonso d'Este (1476-1534), the successor of Ercole, politically astute, authoritative and prosaic, patron and diplomat, was a mixture of good and evil, who, placing the political motive before the cultural, sent for artists and made use of their services, although intellectually he took less pleasure in art.

It is not permissible to study the princes of Este here one by one, it being sufficient to know that Ferrara was adorned with every beauty and like other prosperous cities

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at the time of the Renaissance employed the greatest artists in its architecture and ornamentation, from sculpture to painting and decorative art, as desirous of beautiful palaces as of sumptuous feasts, of elegant receptions, of journeys onerous to the public Treasury; so much so that all that occurred in the Italian courts of the Renaissance went too far and irritated by reason of its exaggerations.

Passing over, therefore, Lionello d'Este (1407-1450), who takes us beyond Ercole I., and is one of the purest lights of the dynasty of Este, and passing over his successor Borso (1413-1471), a liberal and magnificent prince, we may interest ourselves a little in some masters employed by the Estensi, especially in some little-known ones and in the works promoted or encouraged by them.

On the Line of Preference and on Some Little-known Artists.

At Ferrara, painting surpasses the other arts in the rude originality of its style, the amplitude of its activity, the glory of the "Ferraresi" painters, more numerous and illustrious than the local architects and sculptors. Thus, in Italy, the mere mention of the names of Cosimo Tura, Francesco Coffa, Ercole Roberti with Ercole Grandi, the son of Julius Cæsar, and Lorenzo Costa, suffices to recall an uninterrupted series of successes under Borso and Ercole I., carried out by local masters, no less famous, who answer to the names of the Dossi del Garofolo, del Mazzolino the glory of Ferrara and of Italy.

Lionello, one of the purest lights of the dynasty, as we already mentioned, the successor of Niccola III. (1383-1441), of whom he was the natural son, legitimatised by Pope Martino V., was a littérateur and poet, enamoured of every art from architecture to painting, ceramics, and tapestry, who knew Leon Battista Alberti, the great master of architecture, an eminent sculptor and celebrated humanist. It is a pity Alberti did not have the opportunity of carrying out architectural work at Ferrara, since he enjoyed the esteem and friendship of Lionello. Nevertheless, the capital of the House of Este was visited several times by the Florentine master, and Florence, the cradle of the Renaissance, gave to Lionello such artists as Niccola Baroncelli, a sculptor less popular than he deserves to be, and Vittore (or Antonio) Pisano, known as Pisanello, whom I only mention in passing, as I wish to treat more especially of architecture. Thus, under Borso worked the architects Pietro Benvenuti and Biagio Rossetti, particularly the latter, a very active architect of Ferrara, of whose work there are many examples in the territory of Este, and who was praised by his contemporaries and is forgotten by us! However, we need not hesitate to join in the praise of Rossetti, even if he did not erect the elegant Loggia del Consiglio at Padua, his authorship of which is disputed on the basis of apparently irreconcilable data.

We have thus found at Ferrara two artists, both worthy of note: Baroncelli and Rossetti, whose light is pale in history. Continuing, we find another master who only partly enjoys the light of criticism—Ercole Grandi. This artist lived partly in the fifteenth and partly in the sixteenth century (1462-1535), and was a contemporary of Rossetti. He is known as a painter, but almost unknown as an architect. The same may be said of Girolamo da Carpi, another master who lives nobly in the history of the beauties of Ferrara, and of Giovanni da Siena, another Tuscan belonging to the same artistic legion as Alberti, Pisanello, Baroncelli and the many other artists who, at Ferrara, gave form to the artistic visions of the local princes, a symbol of geniality, power and pride to the Estensi, who nevertheless made the capital of the princedom a centre of activity and culture. In architecture, however, the preferences of the princes of Este did not extend to artists of a superior order; therefore none of the best known masters of the compass were invited to carry out architectural work at Ferrara, which employed, in addition to the above-mentioned architects, Pietro Benvenuti, known as Pietro degli Ordini, a certain Gasparo Ruina (what a surname for an architect!), a Terzo de' Terzi, a Bartolomeo Tristani, a Giovanni Stancari, a Jacopo Meleghini, a Galeazzo Alghisi, a Giambattista Aleotti, an Alberto Schiatti, and apart from the painter-architect of Sienna, Baldasarre Peruzzi, an illustrious master who worked at Ferrara, and Pirro Ligorio, who also worked there, a famous Neapolitan architect of the Cinquecento whose work we should study at Rome, all that we know goes to prove that the Estensi and the other wealthy families of Ferrara in the fifteenth and sixteenth century encouraged the lesser-known artists, and did not interest themselves in the masters who, in Tuscany, Lombardy, and Venetia attained to the highest summits. It is also a praiseworthy fact that, not excluding some few exceptions, the aim has been accomplished—viz., to endow Ferrara with palaces of art.

A Survey of the Architecture.

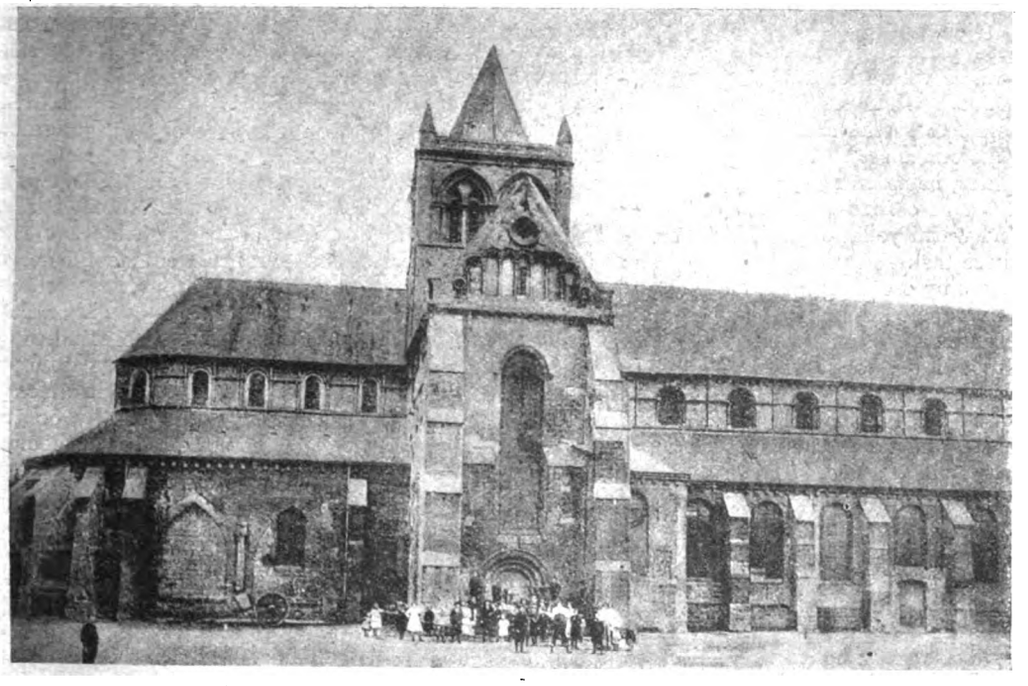
In reality, Ferrara does not boast of any artist or any architectural work that predominates over the rest. The city of the Gonzaga, Mantua, with Leon Battista Alberti and S. Andrea is artistically self-sufficient even without the Ducal Palace; so also is Rimini with the self-same Alberti and the Temple of the Malatesta or S. Francesco; and Urbino with Luciano Dellaurana and the Palace of the Montefeltro, excluding Pienza and the cathedral, because the city of Pio II. is composed artistically of various edifices and does not exemplify and intensify the architectural movement in a work eclipsing all others by the authority of the author or authors, and by reason of the magnificence of its form.

At Ferrara, as at Pienza, the artistic interest is divided, and the Castle with the four towers and the invincible sentinels at every angle is not sufficient, for architecturally and decoratively a cycle of buildings press their claims to consideration by reason of their seductions. An ideal line does not link architecture at Ferrara as at Venice it does in the Ducal Palace and the Gothic palaces of the Grand Canal; thus variety has its dwelling in the streets of Ferrara in the same way as the grass which is springing up there to-day, running riot in the capital of the Principate and freely making everything green. Indeed, near the Palazzo Roverella, with its ornamented façade carved like a reliquary, is a classical doorway like that of the Palazzo Castelli or de' Leoni, and close to the quattrocentesque delicacy of the doorway to the Palazzo Schifanoia stands flamboyant with its twelve thousand six hundred diamond-cut embossments, the Palazzo dei Diamanti.

We must not, however overlook the work of time, which has not respected art at Ferrara as much as one would think; we are, therefore, often called upon to summon fancy rather than reason to our aid when studying the curiosity of the architectural picture of the city of the House of Este, which we wish to know in its profane aspect, excluding religious buildings, in order to group our statements, which are neither rhetorical nor fatuous, more easily.

As a city sacred to beauty, we should wrong Ferrara by a rapid synthesis within the scope of a newspaper article. Another time we may illustrate the cathedral, which does honour to the celebrated family of the Adelardi (twelfth century), the mediæval line of the exterior being still preserved. This cathedral has a fine campanile of various coloured marbles, which, of course, does not rival the campanile of S. Maria del Fiore at Florence, with which comparison would be almost absurd, in spite of the remarks of Burckhardt and those who continued his "Cicerone"; and on another occasion we may visit S. Maria in Vado, designed by the celebrated painter Ercole Grandi, built under the direction of Biagio Rossetti and Bartolomeo Tristani, and formerly consecrated to S. Annunziata, a large and beautiful church; another time also we may enter the Certosa of Ferrara that, unlike the Certosa of Pavia, is a princely monument of the Renaissance, above all in the façade, which recalls the time of its founder Borso, the suc-

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ELEVENTH-CENTURY CHURCH, LILLERS.

cessor of Lionello, and the generosity of Ercole I., who continued it. This is an index of nobility, and contains architectural and decorative treasure in the church, which has been assigned, though on very slender basis, to Jacopo Sansovino, and in the cloisters, which are admirable, both as regards line and colour.

(To be continued.)

DECORATION OF SCHOOLS.*

By MRS. SARGANT FLORENCE.

I WILL not attempt to make a definition of decoration, but take it as granted to be an æsthetic appeal to the sense of sight, and that an essential part of this appeal is the recognition—in the work of art—of fitness to its purpose. Wall decoration is generally classed among the applied arts, and is vaguely supposed in consequence to be simply utilitarian; but the mistake lies in taking the word "applied" to suppose some utilitarian use instead of, as intended, to denote application in some given material to a given purpose, which may or may not be utilitarian. Walls serve their utilitarian purpose of protection without being coloured, but they can in addition be made delightful and centres of attraction by the application of decoration. But for decoration to be successful we must overcome the prevalent idea that it can, in the first instance, have been designed regardless of the nature of the wall, its proportions and its conditions, such as lighting, surroundings, &c. We must realise that decoration is not a kind of movable property, fitted, if charming in itself, to embellish any space. The idea is a modern one, and has produced that queer jumble of colour and form with which the modern world surrounds itself. I do not wish to maintain that no work can be decorative unless it be immovable, but I do not believe that any work can be decorative unless it has been designed for a particular purpose or setting. The fulfilment of these requirements gives "style," which may survive transplanting, but in the process the full value of its qualities is apt to be lost. In considering the question of decoration of schools we are faced with a good many varying problems dependent on the status of the school, whether run by public or private enterprise, &c. But to simplify I will suppose that we are attacking the question of elementary and secondary schools under national control, which means that rigid economy is the order of the day. The same principles of decoration apply to those able to afford more generous outlay; the difference will lie in the elaboration of these principles and more costly material. Now, starting from the point of view of the child, what are his impressions of the building in which he spends at least one-half of the year? He is surrounded by plain brick or plaster walls, mostly coloured in a cold and unattractive green, to a certain extent covered by unassorted maps, charts, and objects of pedagogic interest. The only other permanent colour in the rooms is the foxy-yellow of varnished desks. In the case of the boys their separation from the girls accentuates painfully this absence of bright colour from their class-rooms.

The approaches to the class-rooms are often architecturally quite interesting, but generally suffer from the same colour-wash as the rooms themselves, or are covered with a sombre tone approved of as "not showing dirt."

Now I am aware that this fundamental greenish tint has been chosen as harmless for the children's eyesight, and it also has the merit of being cheap. But there are other colours recognised as equally innocuous to the sight which are also inexpensive and easy to handle. Let us consider how it might be possible to fulfil the conditions laid down by the authorities and yet make the schools attractive and home-like to the children.

We will begin by doing away with that so-called "safe compromise" which is the most fatal thing to art, and differentiate between town schools and country schools, not attempting to decorate them on uniform lines. Town schools are placed among dingy surroundings; they suffer from air laden with dirt, want of light, and dingy outlook; the eyesight does not suffer from too much glare of sunlight, but, on the contrary, from the want of it. Now it is part of the function of colour to hold the balance, so to speak, and to restore the lack of sunshine, or the lack of cool repose, as the case may be. Therefore, in the town schools the aim must be to bring back luminosity and warmth, and this can be effected by employing the large range of yellow earths—unburnt ochres and Siena earths—which are used so largely in Italian buildings, and are restful and pleasing, whether in summer or winter. On the north and east aspects, if the reds of the burnt ochres are too hot for use in large quantities, there are the old rose tints that can be got by the dilution of Indian reds with white. These are solid and durable colours, among the most common and easy to handle; both these ranges of colour give a happy

* A Paper read at the annual meeting of the Art Teachers' Guild at the University of London.

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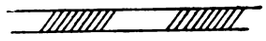
relief from the exterior greyness of sky and buildings, and make a good setting for all the impedimenta of a room. Where painted woodwork enters into the construction, such as windows, frames, sills, &c., the usual custom of painting white cannot be improved upon, as it so greatly tends to increase the effect of the light that filters in. The entrances and passages should be treated on different lines, being mostly worse lighted than are the class-rooms. Red-ochres and the burnt earths—also the greens and warm yellows—give a large choice for the colourist, whose task will probably be to widen the long, narrow corridors by breaking up the stretches into panels of two or more colours, using them in juxtaposition, avoiding the horizontal mouldings or bands of paint with which the trade loves to tie the building up into trim parcels. The artist is generally set to beautify spaces already spoilt by these initial mistakes; he is handicapped from the outset, and these cheap enrichments generally prove very costly in the end. If you are ever consulted in the beginning on the decoration of a hall, class-room, or corridor, set your face against any horizontal lines produced by mouldings for friezes, chair-rails, or dados, which dwarf the height of the wall and hinder the painter in the proper disposition of his colour masses. But, above all, it is the entrances which demand to be made interiorly brilliant and attractive, a welcome to the children, and not, as is customary, merely the portals of academic life. I would concentrate particularly on them. Class-rooms have to be washed and re-decorated every three years, but all the spaces above shoulder height in the remainder of the school buildings need not be subject to such very severe treatment, and more liberty in permanent work might be allowed to the decorator. This problem of cleanliness in public buildings is one of the fundamental conditions underlying appropriate decoration. The future will, I think, solve it to a great extent by the application of vacuum cleaning to walls and ceilings as to floors, but at present renovation by washing and re-colouring every three years limits the efforts of the decorator, at present, to plain colour-wash or paint. The art of the decorator consists in making beauty and beautiful surroundings; the more they are enlarged, the greater will be his scope for more varied treatment.

Turning now to the case of country schools. Applying the same æsthetic principles here as to town schools, we shall be led to employing very much the same distinction in colours modified by the fresh green outlook usual in English country and the greater amount of sunlight. The yellow range of the rooms with south aspect would become softened to a more creamy tone, but the rose tints on the north side would probably remain the same, or might be turned into a dull tawny colour. With the fine large windows now proper to schools, a great deal of reflected colour enters if that colour exists outside; hence the country green very much affects interior colouring. Treatment of the entrances would probably be most affected, as being most closely in touch with the changed conditions.

With regard to the economics of the question, nothing that I have suggested would entail more cost than hitherto for actual material, including only the more common colours; but, in the first instance, greater cost would be involved in the employment of someone capable of establishing a suitable colour scheme. In this way the new initiative will make itself felt. Instead of accepting a routine which treats the decoration of schools as a superfluous luxury to be carried through on the basis of cheapness, and which has in consequence caused it to fall into the hands of the usual contracting builder, only responsible for a faithful reproduction of previous effects, whether successes or failures, it will be recognised that decoration is an art as intricate in technique and demanding as much natural gift as pictorial work, and in addition the power of directing others.

The master decorator knows how to bring warmth into chilly places, cheerfulness into gloom; but to take it for granted that these desirable results can be achieved by an artist because he knows how to paint is to court failure. It has been suggested that the student or young artist could be well employed using his or her skill and gaining knowledge on school walls, but unless co-ordination of the whole scheme is in the hands of a trained decorator, with full powers to develop the colour scheme in all its parts, it is scarcely reasonable to expect either economy or success. The several experiments made by groups of artists to decorate given wall spaces with figure compositions do not, of course, enter into this category, as the question of cost must rule out such elaborate work.

If I were asked to state precisely what materials and colour design could be employed within the narrow limits imposed by the modern hygiene standard, I should turn at once to the range of washable distempers, such as Duresco, and the petrifying liquids which are to be had in the market, using them directly on the bare walls, whether brick, stone, or plaster. Should the walls be in some form of cement, greater care is needed in choice of the distemper, as discoloration takes place owing to presence of acids in these bodies. It is here that the experience of the house-painter must step in. The actual colour would, of course, depend on the circumstances of aspect, &c., upon which I have already dwelt; but, putting aside the choice of actual hue, I would cover the walls, should they be moderately lofty, with a flat wash of as light a tone as would be permissible from the ceiling down to about shoulder height from the floor, where a much darker hue of probably a second colour should be employed on account of the exposure of that portion of the wall to dirt. Behind the teacher's platform I would also reserve a space of this second hue of a height to form a background for the slates and blackboards, and even go the length, if sufficient play were allowed the decorator, of enriching the edge of this reserved space with a narrow border of two alternate



colours, such as still survive on the outside walls of some country places.

This would tend to give dignity to the teacher's position, and form a certain point de mire, helpful in unconsciously attracting the attention of the scholars. The same darker hue might also be of service in covering any spaces that may be allotted to receiving the necessary charts and diagrams such as now cover school walls indiscriminately. To these I intend referring later on.

As a colourist I should do my utmost to break through the tradition of those varnished pine desks, whose only saving grace is perhaps that their hot colour counterbalances the chilling effect of the universal green. It is to be hoped that the Victorian fashion of varnished pine will die out in schools, as it has died out in the house; until it does, there will be difficulty in introducing successfully the warmer mural colours of which I have spoken.

As you will have seen, the actual wall decoration of the class-rooms is a simple matter so far as the painter is concerned, there being necessarily so much material connected with school work which can be made an adornment if it is provided with a proper setting. There is also all the human element to be considered which fills the floor space, acting as an irregular pattern, and demanding as much repose as possible in its surroundings. With huge windows patterned by the outlines of their panes, by the vertical lines of their curtains, and by the play of light and shade outside, the class-rooms not infrequently need no added design from the brush of the wall-painter to give variety of interest: it is rather the approaches to the rooms, the entrances, and lobbies which seem to demand special attention. In these domains the scheme of colouring must also be dependent on conditions already considered. The flat washes of colour will necessarily have to be of a full and steady tone from floor to shoulder height, possibly even in oil-paint on account of the constant passing to and fro, but above that height

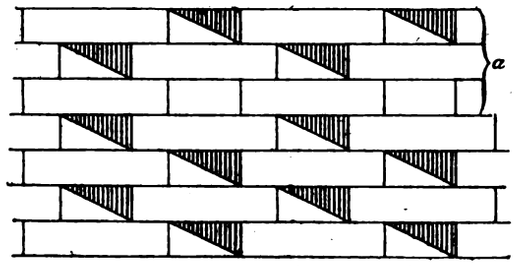
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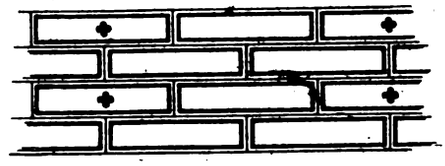
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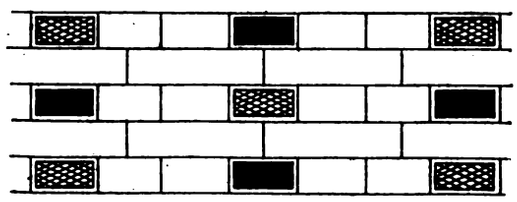
there is scope for embellishment, one form of which I would like to bring to your notice as a practical and satisfactory form of design. It is only applicable to brick or stone walls, as its charm lies in the use made of the natural irregularity of joints, which do not, of course, exist in plaster or cement. After laying the chosen colour-wash over the wall—it must be in some very light tone, or white by preference—the painter works out his design in another and a fuller hue, using one, two, or several bricks, as the unit of his pattern.

Here are some designs I have found very effective:—



To avoid a monotonous regularity break the repetition in the manner shown at *a*.





The larger the unit, the less intricate the work. One or more pattern colours may be used. The greater the number, of course, the more elaborate and the richer the effect.

A simple design for dark or remote spaces divides the brick diagonally, colouring one-half with the pattern hue, leaving the other half of the background tint.

It is best to avoid the one-brick unit with such a decided and monotonous pattern. The variety possible is practically infinite, and is applicable to every kind of brick surface, flat or curved.

In arches it is particularly happy, as it can be made to accentuate the members, such as the keystone, capitals, uprights, bases, &c.; or, if these are lacking, and the archway is simply a rounded band doing service for uprights and arch proper, each member can be suggested by the proper direction and accent in line.

This is an old method of decoration of the Middle Ages which has fallen into discredit, owing to its application in ruled lines to smooth plaster walls where joints do not exist, and, the motive for the pattern being non-existent, it becomes cold and futile. It is at its best used in restricted spaces, such as panels over doors and archways, in ornamenting archways themselves, on chimney breasts, or where it is desired to break up long, narrow stretches of wall, as in corridors and passages, where panels of plain colour alternating with spaces of broken design ease the feeling of interminable length.

Having, I hope, made my point clear as to the nature of decoration that is immovable, I will pass on to the other means of beautifying space—namely, to work that can be removed at will. Now, such work may have been (1) actually designed for the particular place in which it is set, or (2) for conditions and purposes which have given special character—properly "style"—although the actual work has not found a resting-place among them. Or, on the other hand, (3) it may not have been designed subject to any particular conditions. The latter category may be called "exhibition work" and regarded in the light of a gem which calls for its own setting, although, of course, in some instances it may enhance the value of that which is already there. But, generally speaking, such work must be considered as a luxury rather than as an intrinsic part of the whole scheme.

These strictures do not apply to movable work designed with a set purpose; it is the acceptance of set conditions which determines its decorative character as part of a whole scheme, not the question of greater or less mobility. The latter does not essentially affect the decorative value of a work of art, but it does tend to introduce the habit of working apart from the surroundings amongst which it will ultimately be set, and foster, in consequence, the tendency to ignore them. It is this habit which has led to the production of purely pictorial painting to the detriment of decorative work, and, indeed,

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almost limited the meaning of the painting art to such work.

In classrooms there must be necessarily a large amount of school apparatus in the shape of maps, diagrams, &c., which encumber the walls, irregularly strewing them, so far as I have seen, with a confusion of shapes and colours interspersed with nails for their support. Now this want of symmetry and coherence is not only bad decoration to begin with, but it is also bad education. The child naturally gets accustomed to lack of symmetry, and it carries into its own home a standard which does not improve conditions already existing there. This tendency to accumulation strikes me as a national one; accumulation on a large scale of little objects of a small scale might be called "cottage style," but it is not confined to cottages. The necessary collection of school apparatus might very well be utilised by grouping the objects in spaces reserved by the colourist for that purpose on the walls, and, provided with suitable picture rails and ledges, nails might be dispensed with.

With the walls disembarrassed in this manner, there will be left a good deal of suggestive space which would, I think, tend to attract gifts from those interested in schools, who at present do not see that additional contributions would do more than add to the confusion. A fine setting will be suggestive of filling it with one object of value æsthetically, which would introduce that touch of imagination we desire to bring into the children's school life. This is the gift of the work of art in whatever form it may be introduced, and although it should be based upon some function of the school itself. At the time of the Crosby Hall Decorations Exhibition, it was suggested by Mr. Charles Aitken, of the Tate Gallery, that this object might be gained by the introduction and use of banners into schools. These were not to be banners of the flag variety devoted to propaganda of a political or Imperial nature, but rather in the nature of the Chinese banner, which records legends, folk-tales, or nature scenes of special charm, and are narrow, hanging pendant from a cross-bar fixed to a centre pole, thus keeping the surface flat and adjustable to the wall. The appropriateness of this idea lies in the intimate part that banners can play in any corporate life; they are symbolic, stand for an idea, and are the quintessence of decoration. They could be made to play an important part both in school routine and in school festivities, and their *motifs* should be drawn from that racial inheritance of which, under modern conditions, the child learns so little. The banner would have its appointed place in the schoolroom, the standard being placed upright against the wall, attached by cramps, from which it could be removed at will. In the case of a hall, or very large room, a series depicting scenes from a chosen tale could be ranged not too high from the ground, within reach of the children. The subject, size, and treatment should all be made dependent on the age and class of children, colouring of the room, &c. For very young children the banner must be small, so as to be easily handled, dealing with the simplest subjects, preferably tales of animals and flowers, bright-coloured, and of straightforward workmanship. The material must have the suppleness of a fabric, preferably linen, hand woven, to provide a firm and yet pliable background. The design can be carried out in appliqué, in stitch, or there is no reason why colour-printing should not be applied to the purpose. But up to the present the only experiment made has been in appliqué. It is possible to have simply a two-colour scheme—for example, a background of full green with the complete design in red, a black outline in stitch being made important and defining the drawing. There are many lines along which it can be made to develop, but there is one line against which I implore you to set your faces, and that is the reproduction on paper in chromo-lithography. The result would be disastrous, and the banner lose its charm and significance. Very delightful effects of colour could be produced by composing the banner with regard to the wall colour. It could be made, by its design and the interest of its subject, a very intimate part of the child's school life. Introduced at first into school festivities, it might eventually be made part of ordinary school routine, and every classroom could possess two or three, not merely to be seen on the walls, but to enter into the exercises and games of the children.

Given the limited possibilities of appropriate school decoration, which, as we have seen, has to fulfil rigid demands of pedagogy, economy, and sanitation, I do not know of any better form in which to introduce the magic of imagination, as essential to real education as the facts and figures of the ordinary school curriculum.

THE OLD TOWERS OF CORNWALL.

By E. H. SEDDING, F.R.I.B.A.

THE average English visitor who comes to Cornwall is disposed to think that the towers of the churches are all alike. The student from Somerset, or from other parts equally famous for their old towers and steeples, has no use for these simple and unpretentious examples in his sketch-book, and the archæologist who has studied better towers in almost every other county, deems those of Cornwall good enough for the churches, but otherwise, with few exceptions, not worth mentioning. There remains the artist—and he loves them!

Generally speaking, the towers of Cornwall do not equal, either in refinement of design or workmanship, those of Somerset and, indeed, of many other counties. Perhaps the remoteness of the county from any of the centres of important industry, situated chiefly in the richer and more fertile parts of England, within easy touch of the great schools of religious thought, and where the study of art formed an essential feature of the daily routine, had its effect upon ecclesiastical design in Cornwall, demonstrated in an architecture more homely in character than any other save that of Wales.

The influence of education upon mediæval architecture is marked by the extraordinary beauty of proportion and detail found in the churches and buildings reared for the use of scholars of the Church. Who can doubt that the Abbey and Priory churches of Devon or Somerset owed their splendour of proportions and grace of detail to the lofty spirit and education which pervaded their lives? Of the high order of architectural achievement there is little to show in Cornwall, but traces of it may be found in the Priory Church of St. Germans, where the two western towers are Norman work as high as the rise of the west gable of the nave. There is nothing left of the Priory towers at Bodmin or Launceston, but, in the latter town, the excellence of the granite work, of which the walls of the early sixteenth century church of St. Mary Magdalene are composed, indicates the hand of a designer of no ordinary ability, who possibly obtained the services of skilled craftsmen from the Priory. If the existing tower had been rebuilt by Sir Thomas Trecarrel, who supplied the funds for the church, it is safe to say that the stately tower of Probus would have had an important rival.

Early towers are so rare in Cornwall that, with the exception of those at St. Germans—which are buttressed in the customary Norman manner with only 6-in. projections more like pilasters—the little tower of St. John, and the two lower stages of the similar tower at St. Gennys, we have nothing further of importance to note about the towers erected by Norman builders. They are, however, of real value, being of quite original workmanship, although simple examples of their type.

The pointed arches by which two sides of the twin towers of St. Germans communicate with the church prove that the towers were built at the close of the Norman era, and it appears to the writer that the "roll mouldings" between the double chamfer of the arches were inserted as an afterthought. The capitals of the respond piers are astonishingly varied in the carvings

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and well preserved. The "newel" stairway in the south tower* was used by the monks as an approach to a wooden gallery, with square-headed doorways connecting both towers across the nave, the towers themselves having no external entrance, a feature also noticeable in the little west towers at St. John's and St. Gennys. Wherever external doorways are found in Norman-built towers they are usually of later insertion.

A few towers of the same type, built not later than the fourteenth century, were altered in the fifteenth by the addition of buttresses, a western doorway, and larger windows.

Before passing to the thirteenth century, we must mention the towers of Bodmin, Saltash, and St. Enodoc, which have not been so much transformed by later builders as is the case with others which were re-cased with fresh stone, buttressed, and heightened. The additions of a west doorway, with three or four light windows above and a new battlemented parapet, complete the transformation.

It is not easy to mention a typical thirteenth century tower in the whole of Cornwall. The simple, unbuttressed form of tower, with "battering" walls, had its origin in very early times among the Assyrians, Babylonians, Egyptians, Greeks, Romans, and, later, the Normans, and was perpetuated in village churches during the thirteenth and fourteenth and even in the fifteenth century, as at Endellion. It is usually of square plan, although in the Lizard district rectangular towers prevail. It is generally composed of three stages, each stage being "battered"—the most solid manner of building a tower, and one which obviates the need for buttresses. In the thirteenth century, towers of such a type were built at Tintagel, St. Breward, St. Breock, and Padstow, and in the following century at St. Madron, St. Creed, Egloskerry, and Lanteglos-by-Fowey, while several rectangular specimens are to be seen in the Lizard district, of which St. Keverne (originally a Norman tower) is the best.†

Such a type of tower was built for defence and refuge in the event of invasion, the circular towers of East Anglia being erected for the same purpose, while also serving as treasuries for their churches in times of Danish raids.‡ They are constructed of flint, for stone was scarce,§ and the round form was adopted for economy, as stone had to be conveyed from a distance. The case is different in Cornwall, where stone had only to be fetched from cliff or moor, and at Ruan Minor or Landewednack the stones throughout are of huge size and fine colour, placed in position with the rough natural surface left intact, having almost the appearance of boulders.

In the Lizard district, one tower is composed of only thirty-three courses, some of them measuring nearly 2 ft. in height. In the granite district the stones are even greater, not in height, but in length, as at Luxulyan and Lanreath, where there are stones from 5 to nearly 7 feet in length. Such towers are eloquent witnesses of the faith of the men who reared them. Many a coast tower serves as guide to mariners, and many an inland turret-beacon has befriended travellers across the treacherous moor. There is no better example among them than that at Tintagel, where the very grave stones are buttressed against the furious winds which sweep the cliff on which the tower stands, firm as the rock itself, a welcome beacon to the sailor and a trusty shield of the church.

The finest fourteenth century example is the lofty buttressed and pinnacled tower at St. Columb Major, of which the ground stage is arched on three sides. The eastern arch communicates with the church; the other two, which face north and south, are exterior. The main object of building a tower on arched legs seems to have been to throw the tower into the body of the church, as the Normans did at St. Germans, and half a century later at Lostwithiel,* and again in the following century at St. Columb, Lanteglos, Fowey, and St. Keverne, and late in the fifteenth century at St. Blazey.

Perhaps one of the most interesting features ever found in Cornish churches is where the tower is quite detached from the church, as at St. Feock, Gunwalloe, Lamorran, and Talland, where it forms the link between it and the church porch. One reason for building towers in such a way has been (as we know from written evidence was the case at Beccles in Suffolk) the difficulty of foundations. If a large tower were contemplated after the nave was built, the erection of a heavy structure would involve risk to the older part. As everyone knows, a new building always settles, and is apt to unsettle a previous erection if in juxtaposition, even in the case of a rock foundation.

Good examples of buttressed towers were erected late in the fourteenth century, among which are Lansallos, Egloshayle, St. Ives, St. Neot, Landrake, South Hill, St. Crantock, Launceston (St. Mary Magdalene), Altarnun, St. Mawgan-in-Pydar, and St. Dominic. At Stratton, the outer parts of the buttresses are pointed, not square like ordinary ones. In the opinion of the writer, the effect is good and unique.

(To be continued.)

* The north staircase has been blocked up "in restoration."

† Rebuilt c. 1340.

‡ The case of the Irish circular towers is more marked. Their defensive origin has now been clearly recognised. In some respects the Irish and East Anglian towers bear some resemblance. From careful examination of all the East Anglian examples (from memory thirteen or fourteen towers), the writer was convinced of the military use these towers afforded, both for purposes of observation and defence. The Irish tower with its conical stone roof acted as a sort of military sentinel of the monastery or conventual establishment, and the lower stages contained no openings. The East Anglian examples have chancel arches, but some of them are insertions. They also served as bell towers for the little churches to which they are now attached, but in the event of the enemy gaining access into the church they could only reach the sacred treasures in the tower through the little opening well above the tower arch by means of ladders, as no staircase formed a part of the tower construction. In the Haddiscoe tower (the only example) a rude stairway has been burrowed out of the southern portion of the tower walls in comparatively modern times.

§ The Barnack Quarries, near Stamford, supplied immense quantities of stone for East Anglia. The Cornish defence towers do not contain the little doorway above the tower arch by which the precious vessels, &c., were taken into the tower in time of danger, like those in East Anglia.

STANDARD METHODS OF TESTING.†

I DO not think it would be any exaggeration to say that the unhealthy state of opinion on methods of making tests is at the very root of the unsatisfactory condition both of the science and of the commercial position of the trade at the present time. One cannot have any real science without some attempt at exact investigation of facts, not as they are for convenience assumed to be, but as they really are.

One cannot have satisfactory commercial conditions when there is no clearly recognised distinction between the work of an expert and that of a mechanic or plumber.

It is a very unhealthy state of things that an ignorant person should in any case be able to masquerade as an expert without being immediately found out—for that is the practical effect of the absence of recognised standard tests.

It is an unfortunate feature of the heating and ventilating trade, to which attention has often previously been called, that it is possible for a mechanic or a plumber to scramble along somehow, as a heating engineer, without any real scientific knowledge, and for any practitioner to shut his eyes to the fact that much of the so-called science he employs may be in reality a collection of rules of thumb only, that it is possible to make a pretence of

* At Lostwithiel the proximity of the tower and street suggests that the north and south arches formed a right of way for foot passengers. The beautiful spire was added about 1360.

† Extract from a Paper by Mr. A. H. Barker, B.A. B.Sc., read at the annual general meeting of the Institution of Heating and Ventilating Engineers.

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a test of a plant which will satisfy a client, and sometimes even a heating engineer, which is in reality an absurdity. That it is even possible to erect a heating apparatus in a fairly large building, which will work somehow, and to make a client satisfied with an apparatus which from a scientific point of view is very badly designed indeed.

The effect of the inferiority of a design in this sense is that the apparatus is more costly than it ought to be, that it is not uniform in working, and that it requires more fuel than ought to be used.

If a badly designed apparatus were as cheap as a well designed one, if it would work as well, and if it would be no more expensive in fuel, then, to be quite candid, there would be no present practical advantage in applying science to this industry. As far as immediate trade advantage is concerned, we might at once cease all our efforts after scientific education in this subject. But these things are not so. In fact, a well designed apparatus is both cheaper to install, more uniform in working, and more economical in fuel than a badly designed one.

If a client has been supplied with a bad apparatus, for which he has paid 25 per cent. more than he ought, and is using 30 per cent. more than a proper quantity of fuel to produce a certain result, in many cases he has no means of knowing that these things are so. The heating engineer who put it in possibly himself may not know.

The reason that such facts are not brought home to both is that there are no standard and scientific methods of testing such plant generally recognised. Further, the heating engineer, owing to the absence of such standard methods, has no means of learning how he can do better in future.

The root cause of all this is that a really valid test of a heating or ventilating plant or any plant of allied character is a very complicated matter and involves the consideration of a very large number of variables, each of which has on the net result an effect which may be large, though at the same time difficult to trace with exactitude. Simultaneous variations of two or three of these are sufficient entirely to mask any exact result that may be sought after, and to make it totally impossible for anybody to derive any precise information from such a test or to compare one plant with another in respect of its efficiency.

If we do not apply enough science to the matter to enable us to take account of all the really important factors at once, we do not know where we are, and it makes any real test impossible.

The object of laying down standard methods of testing is that it may be possible to gauge the success of a design on sound principles and to eliminate automatically all the factors which hide the true results. If such tests are properly carried out it would be impossible for a bad apparatus to masquerade as a well designed one, and attention would be automatically called to the parts of the design which are wrong. A bad test does none of these things.

Thus the ordinary method of testing a heating apparatus by measuring the temperatures produced in rooms, especially in variable conditions of the outside weather, is of no value whatever for giving exact information about the apparatus or to serve as a guide in the design of future apparatus. Such a test, however, if it can be so called, may conceivably satisfy a client, and it may also satisfy an engineer that the apparatus is not likely to be any more trouble to him.

It would be absurd to deny that these are two very important things from the present commercial point of view. All faults of design are automatically buried if the apparatus is once made to work to the satisfaction of the client, even if that satisfaction is based on the client's ignorance of the defects. That is the only real ground on which the present rotten system can be defended.

At the same time we should not shut our eyes to the fact that such tests are of no scientific value whatever, and are of no technical value to the engineer. They do not even prove that his apparatus is well designed, nor show him how he can do better in the future nor in what way he might have produced an equally satisfactory result with half the expenditure of money, nor that the client could not have got an apparatus which would satisfy him equally well for an expenditure of fuel of 60 per cent. of what he has actually to spend, nor does it give the engineer any information of any kind of any future value.

These are the real points in the science of the subject. In the long run they are of vital importance to the future of the trade, considered simply as a trade. It is precisely such points as these which constitute the justification, and the only obvious commercial justification for the application of science to this subject. In reality there is always justification for advance of exact knowledge, even though the practical application of such knowledge is not at the time apparent.

The first portion of the apparatus that claims attention would be the boiler, and of all parts of a plant this is the most difficult to test satisfactorily.

A testing plant such as forms part of the equipment of our larger boiler-making firms is expensive to erect and difficult to work. But rightly used it affords an enormous amount of information, much more than a scratch apparatus could possibly do. It is designed for the purpose of rapidly and thoroughly testing every feature of one boiler after another, and such plants are often in continuous use from one end of the year to the other.

It would be very undesirable to require the use of such a complicated plant in order to lay down the conditions of a standard boiler test if it can be avoided. But any satisfactory test of a boiler carried out without the use of such a plant must involve a good deal of special preparation, and cannot be carried out without considerable expense. It is even open to question whether such a plant is not absolutely necessary.

As in all tests, the essential difficulty is that it shall be possible to repeat the test and secure approximately the same result time after time from the same boiler. If this cannot be done the test is a futility, but it can only be done by maintaining the essential conditions on which uniformity depends precisely constant as between successive tests.

For such a purpose it is of no use to test a boiler on two separate occasions without securing uniformity in (1) quality of fuel; (2) rate of fuel consumption; (3) the flow and return temperatures at which the boiler is working. But if these factors can be kept standard and constant then there is no reason why a perfectly uniform result should not be secured time after time, and much valuable information secured.

It does not seem to be possible for any untrained person to make a successful test. It would require a good working practical knowledge of sound, scientific laboratory method, such as no man can have unless he is trained up to it. Indeed, with all possible precautions I doubt very much the possibility of any good results from a scratch test of a boiler.

I suggest also that the power of a boiler should be given in units which might be called "centitherms" of 100 therms, or British thermal units per hour, and that the same unit be adopted throughout the trade for all purposes.

It appears that our present method of dealing with radiators, their surfaces and heat emissions, is very unsound and most unsatisfactory.

We are given in catalogues tables which purport to represent the heating surfaces. Some of the more scientific makers also supply tables of co-efficients from which the heat emission per square foot under different conditions may be calculated.

But the total emission is not, in fact, proportional to the surface, nor is the co-efficient, in fact, constant at varying temperatures. In the great majority of tables these are given as constant. On the assumption that both these given sets of tables are correct, which they cannot be unless they are very elaborate indeed, it is possible for any person who understands the subject to

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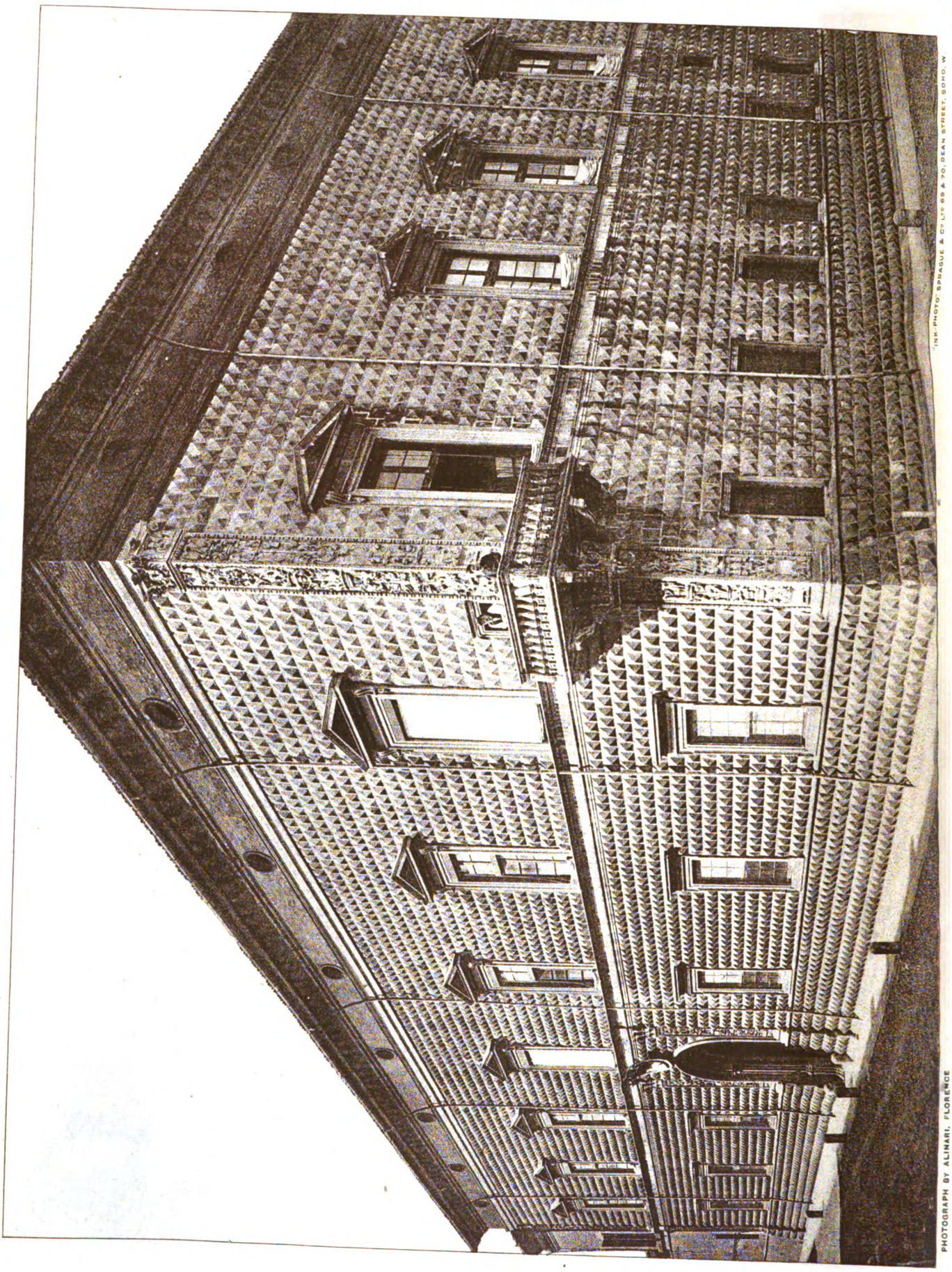
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FERRARA: ENTRANCE TO PALAZZO DEI DIAMANTI.

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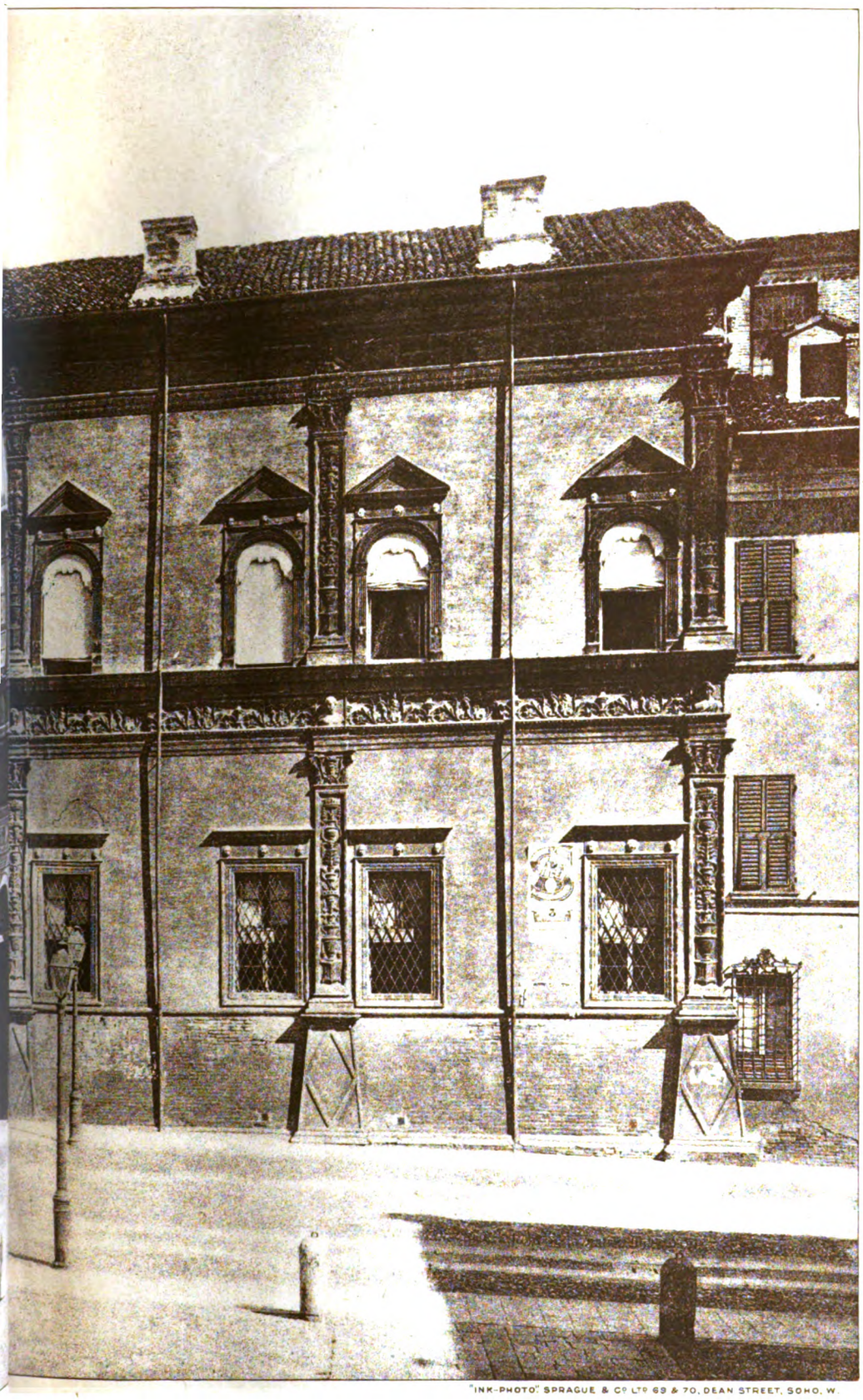


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calculate what would be the emission of the radiator in question in therms per hour under certain specified conditions.

What is really required for practical purposes is not the heating surface of the radiator and not the variable co-efficients of emission, but the total emission of each size of radiator under certain standard conditions as to location and temperature. Then we shall know where we are without any calculations at all. Nobody cares what the surface of the radiator may be so long as it gives off the desired amount of heat. Provided always we keep the radiator temperatures up to the standard we shall then get the amount of heat we calculate on. If we do do not we shall not, and not all the calculation in the world makes any difference to that fundamental fact.

The actual conditions which would secure a constant emission from any radiator are: (1) Still air at a given surrounding air temperature; (2) a given flow and return water temperature, secured by employing a constant flow of water at a given temperature through the radiator; (3) a flat surface of given emissivity, maintained at a constant given temperature at a given distance from the radiator under test. Unless all these conditions can be simultaneously fulfilled it is impossible to obtain uniformity of result from any test.

In order to attain this ideal there should be a standard method of testing radiators, which should be somewhat as follows:

Assume that the standard flow and return temperatures shall be respectively 160° and 130° Fahr., the radiator should be fixed up on the testing stand 2 in. in front of a large flat blackened surface, maintained at a constant temperature of 90°. Water should be allowed to flow through the radiator with top and bottom connections from a large tank maintained at 160°, the flow of water should be increased by a valve, automatically operated or otherwise, until the return temperature is settled at 130°, and the quantity of water required to produce this result flowing from the radiator per hour (w) carefully weighed, and the heat emission in these conditions calculated by the formula $w \times 30$. I suggest that this figure divided by 100 should be the nominal power of the radiator. Thus such a surface as would give off 100 therms per hour would be a nominal radiator unit, and I suggest should be called a "centitherm." This expression would then be used intead of the present "square foot" for all purposes connected with emissions from heating apparatus. We should have in catalogues the number of centitherms which a radiator would give off if maintained at standard temperatures.

The emission of a radiator per square foot varies very considerably according to its height, length, number of columns, air space and general design, and according to its position and especially according to the temperature of the wall behind it, and the stillness of the air in its neighbourhood. It is not at all proportional to the surface even when two radiators only differ in the number of sections. 99 radiators out of 100 in practice are fixed against a wall, and therefore this is the most practicable position in which to make standard tests.

When a radiator is first heated in front of a cold wall, its emission is very considerably greater than after the wall becomes warm. The temperature of the wall behind the radiator gradually rises until it reaches somewhere about 90° to 100° more or less according to the exposure on the other side of the wall. For precision, therefore, it is necessary to take an arbitrary value for this wall temperature, and that is suggested to be fixed at 90°. A sufficient uniformity in this particular could easily be maintained by an intermittent flow of water at 85° through a large flat radiator, such as the Germans call "plattenheizkörper," fixed behind the radiator under test.

If these conditions are carried out we shall have a method of testing the radiator which will give absolutely constant results if the air surrounding the radiator is at rest and at a temperature of 60°, and there will be no question of co-efficients and surfaces of radiators and so forth, to worry one's soul. We shall be able to buy our radiators according to the amount of heat we want and not according to the measured or calculated surface of the radiator, which may or may not be useful heating surface. It would put the whole matter on a sound scientific basis. If then we design our pipes so as to maintain the proper temperatures we shall get the heat we want, no more and no less.

If we require more or less heat from a radiator of a given number of centitherms standard capacity we can get exactly what we want by altering the temperatures. A single table of multipliers would give us all the information we want in this respect.

I have many times previously called attention to the great discrepancy which exists between the resistance per unit length of different samples of pipes nominally of the same size.

The importance of uniformity in this respect to the scientific heating engineer is very great as on it depends entirely the possibility of producing a perfectly uniform working apparatus by calculations only. It is at least as important to the heating engineer to know what is the resistance of his pipes as it is to the electrical engineer to know what is the resistance in ohms per mile of the cable he is using.

The accurate testing of pipes is as complicated and difficult a matter as is the testing of boilers or radiators, and involves the use of a specially designed plant, such as that we have erected at the University College, but it should be possible to erect quite a simple standard testing plant which any heating engineer could use in his own yard, and which would show him the degree of uniformity of the pipe he is buying.

It should be possible if the heating trade takes united action that the tube makers should supply a tube whose resistance shall not vary by more than 2.5 per cent. on each side of the normal. In this connection it may be well to point out again that in the past the best tubes, from the heating engineer's point of view, have been supplied from abroad. It is to be hoped that the British tube makers will become alive to the necessity for providing tubes as smooth and uniform internally and as correct in diameter as those of foreign makers.

Let us now turn briefly to the testing of a complete apparatus. If a heating apparatus is perfectly designed it would fulfil some such conditions as the following with all valves wide open:

1. If the temperature in the flow pipe near the boiler is maintained constantly at, let us say, 160°, then the temperature at the entrance to each radiator should be not less than, say, 155°, and should be almost the same for every radiator in the installation. This is very easy to attain except in very long installations.

2. The temperature of the return pipe from each radiator should also be the same within 5°, that is, it should in no case be below 125°, and in no case above 130°. That is as near as we can hope to get in the present state of tube manufacture. It can only be attained by careful and correct design.

3. The total amount of fuel burnt after the apparatus has attained the above temperatures during the next

$$\frac{H}{10}$$

ten hours should not exceed 8 lbs. for every ten hours it continues working, when H is the total heat given to the rooms per hour in centitherms. This condition depends on the efficiency of the boiler and of the coating employed.

The fire pot should be filled once at the beginning of the test, once after a period of 3 hours 20 minutes, and once after the expiration of 6 hours 40 minutes, the fires being properly cleaned on each occasion.

4. Any radiator may be shut off or controlled without interfering with the circulation of any other, and without disturbing the circulation of the remainder, so far that they would not work. Any such shutting off must necessarily disorganise the circulation to some extent.

If an apparatus would fulfil such a test as this it would be perfectly designed as far as circulation is concerned from a technical point of view. I say nothing, of course,

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about the apparatus having been well erected, for this has nothing to do with the pure science of the subject, neither does it indicate that the calculations for heating surface are correct.

The conditions laid down are the only essential conditions which would enable one to judge whether the apparatus was well proportioned. It is, of course, another matter whether the design was good from a practical or architect's point of view, or whether it supplied as much heat as the customer required.

Correspondence

[The Editor will not be responsible for the opinions expressed by Correspondents.]

Trade Papers for the Front.

Sir,—I have received a letter from a writer who is personally unknown, in which he says:—

"Since my departure from home on active military service some time ago I am denied the pleasure of reading the current issues of the trade journals. I am not grumbling, but, as I seem to be losing all trace of current events, my mind travels back, and I remember your offer in trade papers some time back to send to readers certain books, periodicals, &c., which you had read and finished with. Hence my letter to you.

"Perhaps you cannot imagine what it is like to be away from trade news for months. It is miserable! There are many others like myself who would be pleased to have trade papers sent to them regularly. It would give them something to look forward to and something to think about besides this terrible war."

I am sure there are many papers being sent out by those who have relatives in the Army and Navy. There are also many architects' assistants, as well as apprentices and men from shops, works, and builders' offices who have no papers sent to them who would be pleased to receive the papers. Hence my reason for sending you this letter.

I hope that some of the lucky ones who are left at home will take the hint and send any papers to those who are fighting for us.—Yours, &c.,

J. H. Kerner-Greenwood.

King's Lynn.

BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders, the address is, as a rule, local.)

ENGLAND.

Cumberland.

Wigton.—Jam Works: additions for Messrs. Carr, White & Co.

Durham.

Fishburn.—Thirty-one houses for Messrs. H. Stobart & Co.

Essex.

Frinton-on-Sea.—"The Old House," Queen's Road: additions. Mr. C. H. Jones, builder, Old Road.

Hampshire.

Portsmouth.—Proposed Handicraft Instruction Centre, Stanhope Road, Landport.

Lancashire.

Maghull.—"The Poplars," Deyes Lane: alteration for Mr. J. B. Wolfenden.

Manchester.—Sunday School, Manchester Road, Chorlton-cum-Hardy: additions.

Middlesex.

Willesden.—Factory, Langton Road, Cricklewood: additions. Messrs. C. F. Kearley, Ltd., builders, 4 Great Marlborough Street, London.

Northumberland.

Newcastle-on-Tyne.—Royal Victoria Infirmary: proposed extension by 414 beds and other buildings.

Nottinghamshire.

Nottingham.—Proposed new Hospital for Women.

Sussex.

Horsham.—Horsham Engineering Works: extension. Messrs. Hillman & Murrell, builders, Clarence Road.

Warwickshire.

Allesley.—House, Harvest Hill, for Messrs. G. & L. Jennens (of Birmingham).

Hampton-in-Arden.—Garage, The Nursery, for Mr. J. Kibbler.

Yorkshire.

Keighley.—The War Hospital, Morton Banks: extensions.

Selby.—Proposed Public Elementary School for 500 children.

Sheffield.—Alterations, Fargate, for the Sheffield and District Cinema Theatres, Ltd.

Additions, Sheffield Road, for Messrs. Steel, Peech & Tozer, Ltd.

Additions, Washford Road, for Sir. J. Jonas, Colver & Co., Ltd.

Additions and alterations, Brown and Shoreham Streets, for Messrs. J. J. Saville & Co., Ltd.

Additions, Sussex Street, for Messrs. Wragg & Biggin.

Transformer house, Windsor and Royds Mill Streets, for the Effingham Steelworks, Ltd.

Wakefield.—Wesleyan Church, Alverthorpe: alterations.

WALES.

Holyhead.—Bolton House: addition for Mr. John R. Jones.

SCOTLAND.

Portree.—Carnegie Hostel for about sixty girls.

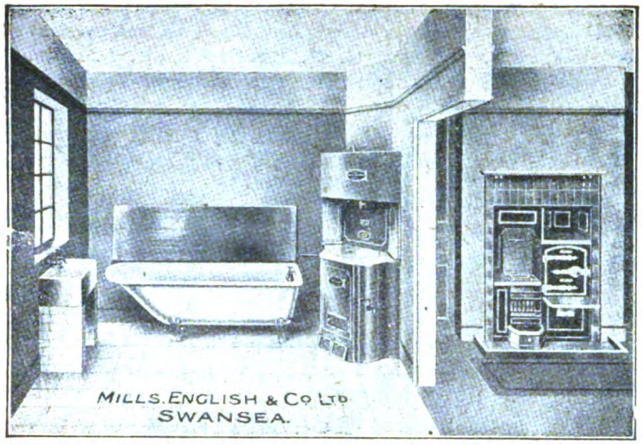
IRELAND.

Dublin.—Wynn's Hotel, Lower Abbey Street. Mr. A. Scott, architect, 49 Upper Sackville Street. Premises, Eden Quay. Messrs. O'Callaghan & Webb, FF.R.I.A.I., architects, 31 South Frederick Street. Messrs. Keatinge, Ltd., contractors, Grafton Street.

At the monthly meeting of the Governors of the Retford Hospital, when the additional demands which are to be anticipated in connection with the new colliery development were discussed, it was decided that, as new buildings would possibly be required, notice be given that they would be further considered at the next meeting.

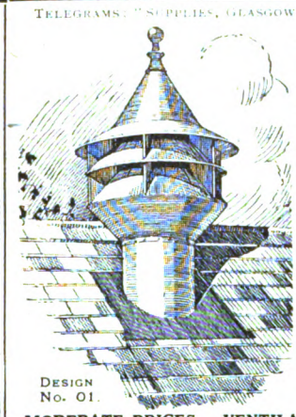
Amongst proposals for educational reform agreed to by the executive of the National Union of Teachers, and recommended for adoption at the close of the war, are the following:—Education to be free through all its stages, including the university. Education to be compulsory from five to eighteen, and every young person to be required to show that he is receiving in a recognised institution education sufficient and satisfactory. Local education authorities to make by-laws providing for full-time attendance to fourteen, and to have power to require full-time attendance to fifteen or sixteen, but in such case partial exemption for beneficial employment. Beyond the age of full-time or half-time exemption attendance during such hours and for such periods as the local authority may by by-law determine, but not less than eight hours a week. Hours of labour and school attendance not to exceed forty-eight a week. Every person under eighteen, on the demand of an employer, to produce a card showing that he is regularly attending an educational institution. The training of girls in the duties of home-life to be an integral portion of every school course.

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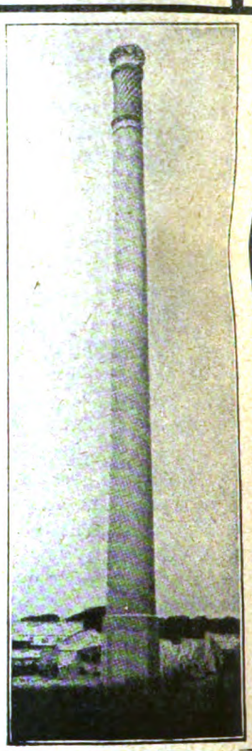
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THE ARCHITECT

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FORTHCOMING EVENTS.

Friday, April 20.

Town Planning Institute: Discussion on "Road Construction and Improvements by Means of Town Planning Schemes," at 6 P.M.

Wednesday, April 25.

Manchester Society of Architects: Annual General Meeting at the Society's Rooms, at 6.30 P.M.

Thursday, April 26.

Concrete Institute: Paper entitled "Secondary Stresses in Structural Steel," by Mr. S. Bylander, at 5.30 P.M.

Saturday, April 28.

Edinburgh Architectural Association: Visit to Paisley Abbey, &c., and the Parish Church (the old Abbey Nave); leader, Mr. P. MacGregor Chalmers, I.A., F.S.A. (Scot.), architect of the Restorations.

Wednesday, May 2.

Royal Archæological Institute:

Monday, May 7.

Royal Institute of British Architects: Annual General Meeting.

Thursday, May 24.

Concrete Institute: Eighth Annual General Meeting, at 5.30 P.M.

Saturday, May 26.

Edinburgh Architectural Association: Visit to Riccarton House, Currie.

Friday, June 1.

Town Planning Institute: Paper entitled "Draft Act, with respect to Planning and Regulating the Use and Development of Land for Building Purposes in Cities, Towns, and Rural Municipalities in Canada," by Mr. Thomas Adams, F.S.I., at 6 P.M.

Monday, June 4.

Royal Institute of British Architects: General Meeting.

DUNDEE'S HOUSING SCHEME.

DUNDEE has set an excellent example in the shape of an admirable report to the Housing and Town Planning Committee of its Town Council by Mr. James Thomson, the City Engineer and City Architect. The vital question of the housing of the population, and especially the poorer section of the industrial classes, is one that cannot be left for future consideration after the War. The problem will then be so insistently urgent that there will be no time for the calm consideration and the careful preparatory work that are essential to a successful solution. Hasty improvisation at the last moment not only causes an appalling waste of money but results in inefficiency, in blunders, and costly mistakes that lead to a future crop of wasteful "improvement" schemes. In an ideally conducted community there would be no improvement schemes, for everything would have been foreseen and provided for in advance. Every improvement scheme is therefore an indictment of past incapacity.

We should like to see every municipality and housing authority in the country, especially those responsible for industrial centres, fulfil their duty, at least as far as the preparation by their official engineer, architect, or surveyor, or by some other competent professional man, of such a report as has been put forward by Mr. Thomson, followed by due consideration and decision on the part of the respective councils, so that, when the day arrives, everything will be in readiness for the immediate prosecution of a well-matured scheme.

The preliminary arrangements which are essential in making preparations for work and in considering schemes of housing are well set out by Mr. Thomson as follows:—(1) The adjustment of provisional agreements for acquiring land near industrial districts either by feu or purchase; (2) The preparation of plans of the lay-out of the land proposed to be acquired; (3) The making of surveys, the taking of levels, and preparing plans and sections of streets and sewers; (4) The fixing the type and size of houses proposed, and the number of houses to the acre for the respective schemes; (5) The designing of houses of the type and size suitable for the respective districts, and the preparation of plans, specifications, and schedule of quantities; (6) The provision of tools, plant, and material required for the formation of streets and the construction of sewers; (7) The selection of foremen and timekeepers, and other administrative preparations; (8) The adjustment of provisional agreements with agricultural and other tenants for obtaining entry to land; (9) The preparation of an estimate of the probable cost; and (10) The obtaining the approval of the Local Government Board to the schemes of housing.

Obviously, all these preliminary arrangements take time, and as they can be very well undertaken, even with depleted staffs, at the present time, it is eminently desirable that they should be proceeded with at once and not left till after the War.

Dundee's Housing Scheme, as set forth in Mr. Thomson's report, is in three sections, which are distinguished as the "Stirling Park Scheme" on the north, "Springhill Scheme" on the east, and "Logie Scheme" on the west of the industrial centres of Dundee. The suitability of the location of these three sites for housing colonies rests primarily upon the fact that radii of 1,000 yards from them respectively cover practically the whole industrial central area of the city. Then, although in each case the land proposed for the scheme is close to a centre of industry, it is yet in an open and healthy locality; whilst each has the advantage of being in close proximity to a tramway route and each adjoins a public park.

The Stirling Park site extends to about 9 acres, the Springhill site to about 31 acres and the Logie site to over 20 acres. The weakness of the scheme as a whole, in respect of location, is thus that the more central site of the three, whose radius of 1,000 yards covers the larger portion of the industrial centre, is the smallest. In dealing with an ancient city like Dundee, such conditions are however almost inevitable, and the town-planner is fortunate in being able to find even a limited opportunity of a central position at anything like a moderate price for land.

In the preparation of plans of the lay-out of the land proposed to be acquired, several ideas for improved conditions are contemplated. Instead of continuous ranges of tenements fronting streets, with openings only at great distances apart, it is proposed that tenements should be in short lengths, with much larger open spaces in front, in rear, and at the ends of the blocks. We should, perhaps, at once explain that the whole of the present scheme is for the erection of tenement dwellings rather than for cottages. The open arrangement of the tenements and their limitation to a height of two storeys, save for a couple of exceptions in the Stirling Park scheme, result in an apportionment of not more than twenty houses to the acre, as opposed to a very prevalent crowding in Dundee of eighty to the acre in tenement houses.

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Another striking departure from customary practice is the proposed erection of communal wash-houses, baths, and day nurseries on each site, with the consequent omission of the ordinary outbuildings, boundary walls, backyard wash-houses, and cellars.

Thus the lay-out purposes to extend to tenement buildings the main principles of garden city planning, including the architectural grouping of blocks, economy of road construction, with avenues and boulevards in petto. If there is an adverse criticism to which the several lay-outs are open, it is that they appear rather much influenced by a desire for symmetrical disposition on paper, which may not perhaps, in view of the suggestion of difficulties of level, be the most advisable arrangement, but which it is impracticable to condemn in the absence from the plans furnished of any indication of contours.

We have already mentioned that the scheme is for tenement houses. We may add that these are intended for the poorest classes of workers, and three types of houses are suggested, one-room, two-room, and three-room respectively, each possessing in addition a kitchen-scullery, larder, coal-place, and W.C. The suggested plans for these types are admirable. Each tenement has its own little porch or entrance hall, a living room of about 280 feet superficial area, no internal corridors or passages, all rooms being entered direct from the living room, whilst the kitchen-scullery is fitted with sink, dresser, and gas cooker. A further feature of especial interest is that it is proposed that from the central communal wash-house and baths building on each site a hot water supply and heating radiator to the living room shall be supplied for each dwelling.

With the finance of the scheme we need not deal in detail—that is a matter for the Town Council—further than to say that it is based on rentals of 6*s*. 6*d*. a week for one-room tenements, 8*s*. for two-room, and 9*s*. 6*d*. for three-room, and that it is assumed that the Government grant in aid will not be less than 25 per cent. of the cost of building only.

Of the necessity of further housing provision in Dundee there can unfortunately be little doubt in view of the facts that, during the last five years, the population has increased by about 7,000, that during that time there have been erected no houses of one-room, eight houses of two-rooms, fifteen houses of three-rooms and ninety-two of four-rooms and upward, that during the same period there have been closed or demolished 240 houses of one-room, 187 houses of two-rooms, and twenty-nine houses of three-rooms, whilst 605 houses are scheduled for demolition under the Central Improvement Scheme, to which has also to be added a number of insanitary dwellings which it is imperative should be closed at the earliest opportunity.

Whilst therefore the present scheme, including the three distinct sections, proposes the erection of 965 houses, it cannot be said to be extravagant in its provision for immediate needs, and there is abundant reason for the Town Council to extend its operations in the acquirement of further cheap land in the suburbs for the erection of cottages and the laying-out of such land for development on the improved health conditions that are usually denoted by garden suburb planning.

NOTES AND COMMENTS.

The report of the Royal Commission on the charges made against Sir John Jackson, Ltd., by the Public Accounts Committee in their report presented to Parliament last August is, in essence, a condemnation of the business ability of the War Office. Sir John Jackson's original offer to do £100,000 worth of work at bare cost is now admitted to be bona-fide and patriotic. The first evidence of the lack of business ability by the War Office lies in the apparent assumption that they could get another three million pounds worth of work done on the same terms. In ordinary life it would be ridiculous to assume that because a man has given half a crown to a charity he could, would, and ought to give another sovereign. But this is what the War Office appear to have expected from their contractor. The next unbusinesslike proceeding was to neglect the opportunity of declining, except upon satisfactory terms, to give Sir John's firm the further work proposed and placing it in other hands. Then comes the stupid performance of allowing the contracting firm to obtain a position in which they could practically dictate their own terms, and not even seizing an opportunity to postpone a settlement of the terms till they could be determined by arbitration rather than by one-sided negotiation.

The ineptitude of the War Office in dealing with a contract on the basis of an agreed percentage on prime cost is further emphasised by the point raised by the expert—and ex parte—committee appointed by the War Office to report on the huts, "that no commission (other than for head-office charges) ought to be paid on the value of any materials supplied by the Office of Works." Any architect or engineer who has had experience of prime-cost contracts would have seen that this question was determined in the agreed terms.

We must accept the finding of the Royal Commission that, in the circumstances, the agreed commission of 5 per cent. on prime cost, plus 1½ per cent. for establishment charges, "was far in excess of any reasonable remuneration," but the general public should not jump at the conclusion that these terms are either excessive or unusual in everyday engineering or building work, even in the case of a three-million-pound job.

The example of the Royal Institute of British Architects has been followed by the Royal Institute of the Architects of Ireland, a deputation from whom has waited on Mr. P. J. O'Neill, the Director of National Service for Ireland, on the 12th inst., in order to offer the services of members of the profession to the Government in connection with National Service. The Director welcomed the deputation, and expressed his desire to avail himself of their services, and to endeavour to find such positions for them as would most usefully utilise their special qualifications. All architects in Ireland are now invited to sign the forms, copies of which can be had on application to the Hon. Secretary, the Royal Institute of the Architects of Ireland, 31 South Frederick Street, Dublin, in order that they may be forwarded collectively in the form of a united offer to the Director of National Service.

Lord Kenyon having written to the Prince of Wales respecting the establishment of a permanent memorial to the North Wales men who have given their lives in the present war by the erection of new science buildings at the University College of North Wales, Bangor, has received the following reply:—

Dear Lord Kenyon,—I have had the honour of submitting to the Prince of Wales your letter with reference to the proposed rebuilding of the science section of the University College of North Wales at Bangor. His Royal Highness was much interested with the information you gave, and quite agrees that in the future training in science must be much more thorough in order to attain the high standard which has been found to be so necessary. This standard can only be achieved by the most modern facilities, and the Prince desires me to say how much he hopes the necessary funds will be eventually subscribed, so that the rebuilding, when once commenced, may not be delayed on that account. His Royal Highness will have much pleasure in sending a donation of £100, and will be glad to hear from time to time of the progress made towards obtaining the sum required.—Yours sincerely, Sidney Greville.

The movement was initiated by Mr. R. J. Thomas, of Holyhead, who subscribed £20,000.

At the annual business meeting of the Edinburgh Architectural Association, Mr. T. Forbes Maclennan, A.R.I.B.A., was reappointed president and Mr. James Kerr, F.F.S., hon. secretary, and Mr. W. G. Walker,

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THE GRANDE PLACE, CASSEL.

C.A., hon. treasurer, were re-elected. In his address, the President referred to the formation of the Institute of Scottish Architects, of which the Association became a chapter. They were putting their house in order for the benefit of the profession in Scotland. It was hoped to obtain better recognition of the need and value of their services by the State, by the municipality, and by the individual. At the same time they would require to see that their education was kept abreast of the times and their efficiency thoroughly maintained or even increased.

Progress is being made towards the establishment of a Ministry of Health. On Friday last a deputation from the National Association of Insurance Committees and the Association of Welsh Committees, representing practically the whole of the Insurance Committees in England and Wales, waited upon Lord Rhondda, President of the Local Government Board, in reference to housing conditions in connection with the administration of sanatorium benefit and the establishment of a Ministry of Health. In connection with this latter proposal the deputation urged that if one Central Health Authority could be established enormous benefit would accrue.

The President, replying, said the Government were very seriously considering the question of a Ministry of Health, and he had to be careful, therefore, as to what he said; but he was heartily in favour of some central authority being established to deal with all the health activities of the local authorities, and he was pressing those views upon the Government.

The Local Government Board was fully aware of the very great importance and urgency of housing reform and he regarded it as the biggest question that the department had to deal with. He had been going into it ever since he had been at the department, and the more he examined the question the more difficult it appeared to become. It would have to be dealt with after the war, and they must therefore take it in hand at once. Owing to the war, financial restrictions, and the difficulty of finding labour, very little could be done in the actual erection of houses, but they were fully alive to the close bearing that work would have upon healthy homes; and in urging this question the deputation were indeed pushing an open door. He hoped before long the Government would come to a decision on the questions that had been raised; and he recognised the special consideration due to the views of the deputation. His plan had always been to build up and construct upon old organisations, and not to pull them down. He had never had any thought or intention of abolishing the local health insurance committees, for he wanted to work with their full co-operation and assistance. With regard to approved societies, he hoped that question would be taken in hand very soon, and he thought that when a central authority was set up it would be found practicable to remove the taint of pauperism. The extension of medical benefits to others than insured persons was another big question, and he had views upon it, but he would rather not express them at present.

The suggestion that the National War Museum should be located in the Tower of London is at least infelicitous, not to say futile. Let the Tower remain as a memorial of the past. For the present great epoch far more space is required. The idea of selecting the banks of the Serpentine is more commendable, whether or not the Long Water be roofed over for the exhibition of naval craft, either actual or in the form of models.

On Friday last a conference with reference to the supply of materials for rebuilding the destroyed area in Dublin was held at the Mansion House. The Lord Mayor presided.

On the motion of the Lord Mayor, seconded by Alderman Moran, the conference unanimously adopted a resolution that a sub-committee, consisting of Messrs. W. Kaye-Parry, H. McLaughlin, R. K. Gamble, Sir P. Shortall, M. C. McGloughlin, M. J. Good, and the City Architect, be appointed to draw up the replies to be given to the Chief Secretary, Mr. Duke, on the subject of the materials, &c., required for the rebuilding of the destroyed area in Dublin.

At the last monthly meeting of the Society of Antiquaries of Scotland a communication was read by Mr. David MacRitchie, F.S.A.Scot., on "Earth Houses and their Occupants." Mr. MacRitchie stated that earth houses, more correctly described in Gaelic as *tigh fo thalaimh*—underground houses—were found in various parts of the British Isles and in foreign countries, and that they were now generally admitted to have been dwellings. Though it was to a certain extent true that there were also such constructions used for storehouses, tombs, and temples, the evidence for sepulchral use was not to be found in this country. The proof which he adduced for their use as habitations was the occurrence

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within them of the débris of food used by man—bones of the ox, deer, and other like creatures, shells and shell-fish, of ornaments of bronze, and of pottery. Mr. MacRitchie illustrated a number of instances from Ireland in which obstacles had been placed in the passage-way so as to obstruct the ingress of an enemy or undesired visitor, and he pointed out that the same idea was not wholly absent from Scottish earth houses, a notable instance being in the mound dwelling at Milton of Whitehouse, in the Braes of Cromar, Aberdeenshire, where the passage appeared to have been intentionally blocked in two places by large upright stones. Mr. MacRitchie, while maintaining that earth houses were built for occupation, expressed his opinion that their use was probably casual and intermittent and throughout the winter months, and that they were abandoned by their inhabitants during the milder seasons when they led a nomadic life. In considering the date of these buildings Mr. MacRitchie pointed out that the existence in some of the stones showing undoubtedly Roman workmanship, as at Crichton, in Midlothian, and the presence of Roman pottery was sufficient evidence of some at least having been erected and utilised during the period of the Roman occupation or shortly subsequent thereto.

ILLUSTRATIONS.

FERRARA: HOUSE OF LODOVICO ARIOSTO; PALAZZO SACRATI AND PALAZZO SCHIFANOIA.

Descriptions of the buildings shown in our illustrations will be found in the article by Professor Alfredo Melani on the Palaces of Ferrara.

CHURCHYARD CROSS AT ILMINSTER, SOMERSET.

This cross is being executed in stone at the workshops of Mr. Herbert Read at Exeter, from Mr. F. Bligh Bond's design. The cross itself is in Portland stone, and the steps are in Doulting stone. It is being erected by subscription as a parish memorial to those who have fallen in the war, and whose names will be recorded on a tablet in the church.

RESTORATION OF CHURCHYARD CROSS AT OLD CLEEVE, NEAR MINEHEAD, SOMERSET.

The old cross exists in a fairly perfect state up to a point just above the cap on the shaft, and until recently one of the brackets which are shown supporting the side figures was in situ. The type conforms to other specimens either existing or known to have existed in the neighbourhood.

This cross is being restored by the Rector, Rev. G. Weigall, in memory of his wife, and of those buried in the churchyard.

The work is being executed by Mr. Herbert Read, of Exeter, from Mr. F. Bligh Bond's design.

It is proposed to erect a churchyard cross as a war memorial in the parish of Clayton-cum-Keymer, Sussex, and a design very similar to that at Old Cleeve, Somerset, above described has been approved.

THE PALACES OF FERRARA.

By Professor Alfredo Melani.

A SILENT CITY AND THE CUSTOMS OF THE PRINCES.

(Concluded from last week.)

The Palace of the Prince of Este (Castle) and the Roverella, Schifanoia, Diamanti Palaces, &c.

The House of Lodovico Ariosto at Ferrara, of the cinquecento period, is represented in our illustrations. Although its artistic features are not very considerable, it is planned with genial sobriety, and we publish it also in honour of the celebrated cavalier poet whose "Orlando Furioso" renders him immortal.

I have already remarked that Ferrara does not boast any monument which is predominant by reason of the authority of its author or authors, or the magnificence of its form: this I confirm, although the Palace of the Princes of Este or Castello or Castel Vecchio might perhaps be thought to give the lie to my assertion. It is true that the Castle with its four towers stands out from the general view of the city and dominates it in the same way that the cathedral dominates Milan, that S. Maria del Fiore dominates Florence, that St. Peter's dominates Rome, that the Mole Antonelliana dominates Turin. Notwithstanding this, I insist on my assertion, if for no other reason, because the Castle of Ferrara (the old castle to distinguish it from the new castle, a small building designed by Giovanni da Siena) does not express the work of a great master, although its constructors have made it one of the finest keeps of Italy. Besides, the Castle belongs to military architecture, and if it sums up the motives of resistance corresponding to its purpose, it does not give any tone to the other buildings in the city. Fairly well preserved outside, austere and grave, in spite of the adjuncts which alter its appearance, it was designed in 1385 by Bartolomeo, pupil of Maestro Giovanni da Novara, known as Bartolino da Novara, and took the form under Giovanni dei Naselli of a Gothic edifice, the bricks giving it a ruddy appearance like that of a flowery meadow in spring. A glance is sufficient to enable us to perceive that the four towers have a discordant termination. Indeed, the four little shrines at the summit were added by the architect Alberto Schiatti in the late sixteenth century, together with the weak balustrades on the small arches of the ogees, supporting and cutting the battlements. Nevertheless, the towers with their little receding shrines have acquired an artistic line, and if the miserable little cupola at the top was done away with the general tone would become stronger.

The Castle at Ferrara has had an animated history; and a host of events, painful or gay, gloomy or joyous, have taken place within its walls from the time of its construction—i.e., from Alberto d'Este, its founder, to the other Estensi who made it their aim to beautify it with decorations, pictures, sculptures and objets d'art. There is, therefore, a resemblance between our Castel Vecchio and the Castello Sforzesco of Milan and various other castles of Piedmont, which, far from being used exclusively as fortresses, were places of quiet life in the peaceful moments which alternated with periods of warfare in the lives of the ancient princes and dukes.

Leaving to others the task of relating the political vicissitudes of which the Castle of Ferrara was the scene, we are nevertheless pleased to know that both the better-known and the less celebrated painters of the Renaissance left their trace there, either in mural and fixed paintings or in pictures on wood or canvas. Cosimo Tura, Giovanni Dossi, Giacomo da Carpi, even Titian, according to a rather improbable version, carried out frescoes in the Castle, which was superbly decorated with pictures by Mantegna, Giambellino, Titian, who painted for Alfonso I. the Bacchus with Ariadne, a gem now in the National Gallery in London, and formerly in the Castle of the Estensi, to which Giovanni Dossi gave the famous Circe of the Galleria Borghese in Rome. The little that I have narrated shows that many of the treasures of the Castle were scattered; nevertheless, that which is still preserved in the old Castle is well known (the Sala dell' Aurora is a small room near a terrace), it being the remains of an exceptional artistic patrimony.

The terra cotta gives substance to the Castle and makes its presence felt in lines no longer austere in the Palazzo Magnanini or Hall of the Merchants, also called Palazzo Roverella or Palazzo Aventi. This was built in 1508 at the orders of Girolamo Magnanini, the secretary of Alfonso I., and its vicissitudes were such that only the façade now preserves its original aspect. Thus the palace passed from one owner to another, from the Counts Roverella to the Counts Aventi. For some time now it has housed the merchants, who discuss their affairs in this elegant edifice upon which terra

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THE GRANDE PLACE, BETHUNE.

cotta conferred every possible charm. The marble doorway, therefore, is less suited to the delicate windows, with the brick outlines and ornaments, rising to splendour; and it is less suited to the pilasters and the agile, active friezes. The symmetrically placed first-floor windows, with a pediment rather too high in proportion, may repulse the Classicists, who do not feel the allurement of the Roverella façade, which is a charming specimen of architecture, even admitting that the ornament is not always maintained at the same high level which it attains nearly everywhere in this artistic façade, this being a sign, therefore, that the terra cottas are the work of various masters.

The value of the palace is greatly lessened from its having become an artistic shell without any kernel; a common thing in Italy and very impressive in the Grand Canal, the whole of which is a stone scenario: beautiful façades and discordant or commonplace rooms. Modern comforts, the destructive hand of time, the caprice of fashion, have overthrown the ancient eurythmics.

This did not happen in the same degree to the Palazzo Schifanoia, Ferrara's most celebrated palace, principally by reason of its frescoes, which occupy a glorious place in national painting. To-day, isolated and mute, in one of the many solitary streets of the Silent City, this Castle bears witness in its richness to ancient majesty, if not from the time when Alberto d'Este, the brother of Niccola II., ordered it to be built (1391), then soon after, under Borso, who went on with the palace known as Schifanoia (avoid weariness), as if to proclaim that weariness was never to be felt within its walls, decorated by the brush of illustrious artists. It is thus to Borso that we owe the entrance doorway, a work of great distinction in that Italian Quattrocento style which mournfully modulates its harmonies, enchanting one like soft music. This doorway is worked in marble in the manner idolised by John Ruskin, the calm, serene aesthete and philosopher, when confronting the work of Carpaccio and Giambellino. Nor is anyone ignorant of the treasure to which this entrance gives access, a casket of unsurpassable worth, the frescoes of the Palazzo Schifanoia being the work of Cosimo Tura, Francesco Cossa and the painters who were their followers or companions in the task of decorating the hall of the palace, both the best representatives of Italian painting and the greatest glory of the Renaissance—the Renaissance before Raphael, Titian and Paul Veronese, corresponding to the age of Mantegna, of Fra' Filippo Lippi, and Gozzoli, the work being rather hard and, as people say, immature, slightly angular and harsh, bearing more resemblance to the frescoes in the Eremitani of Padua than to the frescoes in the rooms of the Vatican, a source of moral and physical beauty (Borso often offers to the painters of these rooms his noble lines), a source of grace, richness, skill in all that the fifteenth century in Italy could give. (The frescoes begun in 1467 [?] were finished in 1470.)

Architecturally, the Palazzo dei Diamanti at Ferrara is more interesting. This derives its name from the embossments cut like diamonds with which the exterior is entirely covered. As I have already remarked, there are twelve thousand six hundred slabs of marble cut into facets! This palace was ordered by Sigismondo d'Este, the brother of Ercole I., in the last years of the fifteenth century (1492-93) of Biagio Rossetti, assisted by Gabriele Frisoni, a sculptor of Mantua, who was entrusted with the ornamentation. However, it so happened that they were unable to finish the palace, and they were replaced in 1503 by Girolamo Pasino and Cristoforo Borgognone: nevertheless, Rossetti is the principal author of the palace with its bizarre facing, which is less disturbing than one would think, although the repetition of the slabs cut into facets does not drive away weariness like the Palazzo Schifanoia. The reason for this form of decoration is said to be that the diamond was the favourite sign of Ercole; though frankly, greater discretion in its use would not have annoyed the prince and would have appeased posterity. But discretion is a rare virtue in artists attached to Courts, and the Castle of Milan shows an emblem like that of a viscount's in style—a motif with parallel zigzags, red and white, which are now unbearable owing to the modern restorers of the Castle and the repeaters beyond the walls of the Castello Sforzesco.

The carved pilasters in the Palazzo dei Diamanti are of grand style, but if they were less rich they would have been more restful; it would be better were they adapted to the lights of the slabs cut into facets, which are too scintillating and are repeated too often to surround an elaborately worked surface.

The Palazzo Castelli or de' Leoni, afterwards known as Giraldi or Sacrati and to-day called Prosperi, or rather the doorway of this palace, which is the finest part of the building, is more restful. It stands near the Palazzo dei Diamanti and dates back to the end of the fifteenth century, when it was ordered by Francesco Castelli, chief physician at the Court of Este. Its architect is said to be a little-known Bartolomeo Tristani or a Giovanni Stancari, and Andrea Tani, Borso de Campi, Antonio Bosi, Giacomo da Ferrara are spoken of as sculptors at the palace; but in reality all is obscure, as

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is likewise the authorship of the cinquecentesque doorway, the rather heavy trabeation on the Corinthian columns and the balustrade, which is more quattrocentesque than the rest, with busts and figures of children on the ogee, like the church of the Madonna of Miracles at Venice, and with delicate ornamentation in the small pilasters. Some whimsical little angels look curiously out from the high trabeation, and a corbel juts out in the middle, creating an unusual motif. In short, the balustrade is not in agreement with the doorway, its artistic profile and material are different from the rest; and the present doorway replaces an older one. We need not trouble ourselves about those who deny that the present entrance is the work of Baldassare Peruzzi, and claim that its author is Ercole Grandi, the painter-architect of Ferrara, whom they would like to substitute for the painter-architect of Siena. The data are contradictory, but as some are uncertain, this does not settle the question.

The beautiful entrance of the Palazzo Castelli may be considered with the decorated pilasters on the façade of this palace as a plastic work which may serve as model in the city of the House of Este, as at Florence does the sarcophagus of the Marsuppini monument, and as at Como do the Rodàri doors.

A mine—the only pity is that the palaces of Ferrara are disfigured and in decay! Choosing from among them the Palace of the Seminary, this was erected in 1444 under Lionello, who had it built by Antonio de Bizocchi and presented it to Folco di Villafora, a magnificent personage intimately related to the Prince. The palace underwent various transformations which did not, however, obliterate the ceilings of Garofolo, in two of the ground-floor rooms. In one of these, in which the paintings are best preserved, the delightful colourist paraphrased the motif used by Mantegna in his frescoes, the Sala degli Sposi in the Castle of Mantua, this same motif being repeated at Ferrara by Ercole Grandi in a ceiling of the Palazzo Calcagnini-Beltrame. The photograph (see Illustrations) illustrates my remarks and shows one of the consoles decorated with medallions; and we can place the ceiling of Garofolo amongst the most exquisite examples of decorative art at the period of the Renaissance.

In this connection we should call to mind the so-called "Palazzina" at Ferrara, built in 1559; and in the shadow of its poor remains we should recollect the splendour of the ceilings and walls painted with scenes and grotesques. Grotesques were cultivated at Ferrara, which boasts a painter of them in Gio. Francesco Surchi called Dielai, who was educated under the Dossi and frequently assisted them in the many works they undertook.

Thus, from palace to palace, we have paid short visits to various artistic buildings, but we have not mentioned the Paradise Palace or Palace of the University, the Palazzo Romei with its brick courtyard, the Palazzo Pareschi or Gavassini, the Palazzi Onofrio, Bevislacqua, Bentivoglio, Strozzi, Crispi (formerly Muzzarelli), the ancient Municipal Palace, the seat of the princes of Ferrara, who, not content with urban magnificence, surrounded themselves with places, beyond the limits of the capital, ordered with every care—palaces or country villas bearing the suggestive names of Belfiore, Belriguardo, Belvedere, which we cannot now approach as we can the Villa Còpparo or Mèsola. In the same way we cannot approach other palaces of Ferrara which infinitely extend the beauty of the Silent City, branches of art surrounding the trunk of the ancient flowering tree planted and cultivated with loving care by the princely dynasty of the House of Este, from Niccola II. to Alfonso II., during the long circle of years from 1361 to 1597.

IT is proposed to restore the east window of Holy Trinity Church, Hull, as a memorial to those who have fallen in the war belonging to Hull and district. Mrs. Shaw, the widow, and family of Colonel Shaw (who was killed at the Front), have started the fund with £200.

THE OLD TOWERS OF CORNWALL.

By E. H. SEDDING, F.R.I.B.A.

(Continued from last week.)

TOWERS erected in the fifteenth century are the most numerous. Granite had come into general use at the close of the previous century, replacing softer material. That used by mediæval craftsmen in the fifteenth and sixteenth centuries was surface or moor granite of which there was abundance in the central, north-east, and north-west districts of the Cornish peninsula. Where it was scarce, it was brought for many miles by land or water. Enormous blocks were used for piers of arches, known as monoliths, and for the facing of walls of towers and churches. It was prepared by axes and claw hammers, the latter tools being more serviceable with stone of a less deterrent nature. Large stones were split by hand-drilled holes, bored at intervals, and into these tough oak wedges were driven. Water was then freely applied to the wedges, which swelled in consequence, the expansion causing the granite to break in line with the wedges. A very similar method is in use to-day, iron wedges replacing those of wood.

Had the granite been quarried from below the ground as is now the case, the surfaces of our granite towers and churches would be in a better state of preservation, but lacking the rich brown colour of the moor stone. Where elvan or catacleuse stone was used, moulded and carved surfaces are almost as good now as when fashioned three or four centuries ago. The former is found in granite fissures, and the latter was hewn from the cliffs near Padstow. Much of the detail work of the fifteenth and sixteenth century towers has almost perished in the case of great exposure, as, for example, in the crockets of pinnacles of St. Buryan, St. Ives, Jacobstow, and Callington.

The granite tower of Probus has no rival in size or beauty in the county. It is built of a particularly porous surface granite, which may account for the wonderful growth of gray lichen which covers the whole exterior from base to pinnacle, and adds to its attractiveness. From parapet to ground it measures 105 feet, and is about 10 feet higher than any other tower in Cornwall. Fowey, of which we shall say something later, is 102 feet, but this example is built of Pentuan stone.

The ground stage walls of Probus are no less than 8 feet in thickness, and the same proportion of thickness throughout is evidence that the tower was intended to endure for many a century. It is as noble in form as in strength.

The elevation of the tower is divided into three stages, the lower being ornamented with niches. The plinths are enriched with wall-tracery which plays an important part in the surface ornamentation, particularly in the upper portion of the tower. The buttresses are finely arranged: set a few inches from the corners, they seem to rise to the parapet, but in reality stop at the belfry stage, where the verticality is continued by pinnacles no less than 20 feet high, so cleverly contrived that they appear as continuations of the buttresses.

The pinnacle treatment for the weatherings or set-offs of buttresses is confined to about five towers in the county. At each weathering a short pinnacle is set, fashioned out of the lower stones of the reduced stage of the buttress, above which it rises clear of the shaft and head of the pinnacle a few feet higher up. The artistic value of the arrangement is the easing off of the abrupt, sloping lines of the weatherings. Another important feature of the Probus design is the fine conception of the tracery panels above the belfry windows, so that both become one feature. Observe the double window treatment, for it is the only instance in Cornish architecture, and note also how the parapets rise in line with the walls below, instead of the usual three, or even four inch overhang, so that the corner pinnacles, gabled like spirelets, rise unbroken from the walls. In the scale of design with which we are concerned, we should unhesitatingly place Probus first;

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St. Austell, although 20 feet lower in height, second; and Fowey, in its simple grandeur of proportion, third.*

The high place that, in the writer's opinion, is due to St. Austell, is owing to its detail and grace of outline and, above all, to the beauty of design shown in the arrangement of the niches in the west elevation, and it is one of the most uplifting pieces of design known to the writer. It is the work of a genius.

There is a considerable variety in design and in the size of the Cornish towers. Probably there is no county where the range of design is more varied than in Cornwall; for instance, the Lizard towers are not square on plan, the east and west sides being wider than those facing north and south, the difference of measurement being as much as 2 feet in more than one case; and this type of tower was not intended to have buttresses.

Now look at the lofty towers of north or south Cornwall, which are square on plan and well buttressed—with well-developed west doorways and windows over—which at the close of the fourteenth century became one feature by enclosing both window and doorway under a recessed arch—the outer mouldings the arched head of the window. This was done on both sides of the west wall in some cases, especially in the best granite towers as at St. Stephen's, Launceston. Then there are the ornate towers of St. Probus, St. Austell, and Fowey. What greater contrast could there be between them and the rude dwarf towers of Ruan Minor in the Lizard district? And yet there is a nobleness about the latter, for the great blocks of "serpentine" of which they were built are larger than those used in the well-dressed granite courses of St. Probus.

The stone used in the Ruan and the Lizard districts was "serpentine" from the cliffs. It was the coastal quarries of Pentuan which provided the stone for Fowey and St. Austell, Lansallos or Lanteglos. Stone was obtained in the same way from the hard stone cliffs on the north coast, and granite from the moors was used during the fifteenth and sixteenth centuries for inland towers.

Then we have in contrast to the high light-buttressed towers of which Week St. Mary, Michaelstow, Davidstow, and St. Mabyn are the types, the still loftier examples of Altarnun with its charming angle-buttressed turret; Linkinhorne, with its carved doorway; or the simpler towers of Egloshayle or Landrake.

Perhaps one of the most interesting features ever found in Cornish churches is where the tower is quite detached from the church, as at St. Feock, Gunwalloe, Lamorran and Talland, which is united to the church by an open porch.

The towers of the Callington district have a character of their own. At Callington the lofty pinnacles are remarkable and are continued as far as the string-course below the belfry windows, where the projection is taken by boldly carved angels. As a general rule the pinnacles of a tower rise or start from the string-course which takes the parapet, that is to say, the outer part of the shaft of the pinnacle projects as much as the parapet (usually three or four inches).

The other high towers of this part of the county include Linkinhorne, North Hill, and St. Stephen's by-Saltash. Each has its own particular point of interest and all are worthy on account of their bold details, especially in the west arches and doorways.

A few of the towers mentioned in this section of this notice were commenced in the fourteenth century, as for example, Egloshayle† or Landrake, but in the main they are fifteenth century work; and we must not omit St. Mellion, whose tower, although it does not rise to the height of about 80 feet like those just mentioned, contains craftsmanship of the best in its western archway and doorway fashioned out of Roborough stone.

* The writer has scale drawings of both towers.

† The west doorway of cataclease stone is remarkable; the roll moulding on one side forms the body of a snake, with the head as capital and the twisted tail as base. On the other side this is reversed. This tower is mainly fourteenth century workmanship and is 83 feet to the battlements.

The towers of St. Stephen's, Launceston, and Lezant are masterly examples of the latest phase of pre-Reformation granite-craft. The former is the nobler in size and design, for it is about 80 feet to the battlements, and the deep setting of the west window with the ornamentation under it just above the head of the doorways completes the unification in design of both. The detail of the mouldings here and in the same features at Lezant is bold in the extreme, for in the latter doorway the label or hood-mould terminations are no less than 20 inches square with at least a 9-inch projection. There is another point of considerable value to the student or archæologist, as evidences that certain proportional methods were found by experience to bring about a satisfactory result from an artistic or structural standpoint. The method is only part of a general system of setting out a tower which the writer has discovered to have been in common use at the time of their erection.

Later on I propose to publish a book dealing with Gothic architecture in Cornwall, and this important matter will be dealt with, not only in relation to towers, but other parts of a church. If the reader will examine the buttresses of St. Stephen's, he will find that their width is equal to their projection, and further that the distance of each buttress from the main corner of the tower is equal to the same measurement—in other words, if the buttress is 2 feet 6 in. the width is 2½ feet, and the whole buttress is set back from the corner of the tower 30 inches. This treatment of leaving so much space before the buttress starts is only found in "late" towers, of which Roche is another example. Usually, as most of our readers are aware, the projection of a buttress is considerably more than its width, except in the case of Norman buttresses, which are little more than "pilasters," as in the west towers at St. Germans. A curious instance of a buttress treatment will be seen in the fine old tower of St. Ives, where the width is greater than the projection.*

Another and very uncommon kind of buttress will be found on the west tower at Stratton. Here, instead of the usual right-angled treatment, the buttresses are widely chamfered to a point which starts above the plinth and reverts to the flat or square face where the weatherings occur. The tracery work with its flaunting wall-pinnacles of the western doorway reminds one of the design in the freestone fifteenth century tower at Lewannick.

(To be continued.)

THE LATE LIEUT. S. E. BARROW, A.R.I.B.A.

A BEAUTIFUL stained-glass window, designed and executed by Messrs. Shrigley & Hunt, Lancaster and London, has been placed in the Royal Lancaster Infirmary in memory of the late Lieutenant S. E. Barrow, King's Own Royal Lancaster Regiment, for some years treasurer of the Institution, who died in St. Thomas's Hospital, London, in 1915, from wounds received in action at Ypres. The window contains a figure of a Roman soldier with a broken sword under his feet, a dove and olive branch on his shield, and a lamb in his arms. The figure is surrounded by a rich ornament in white and stained glass, the figure panel only being in rich colour. At the top of the figure is the motto "Non sibi sed patriæ." The inscription tablet on the wall by the window reads as follows:—

To the memory of
Spencer Ellwood Barrow, A.R.I.B.A.,
Lieut. 5th Bn. The King's Own
Royal Lancaster Regiment
Hon. Treasurer of this Royal Infirmary
A Member of the Society of Friends,
Who died, aged 42 years, on the 16th
Nov. 1915,
From wounds received in action.
This window is erected by his mother,
brother, sisters, and brother-in-law.

* The measurements must be taken above the plinths and not below—plinths are merely the "booths" of a tower.

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The deceased's relatives have also given a sum of £250 to be invested for the benefit of the infirmary in memory of the deceased officer.

RESTRICTIONS ON THE SALE OF IMPORTED SOFT WOOD.

IN pursuance of the powers conferred upon them by the Defence of the Realm Regulations, the Army Council hereby require all persons in the United Kingdom engaged in the purchase or sale of imported soft wood to comply with the following regulations, provided that nothing herein contained shall apply to imported soft wood which, at the date hereof, shall have been despatched by any timber merchant to any consumer, or for which payment shall have been made by such consumer:—

1. Save as herein provided no timber merchant shall (1) sell in any month, for consumption, an amount of imported soft wood exceeding 1 per cent. of the amount of timber which he had in stock in the United Kingdom on the first day of April, 1917; (2) sell for consumption any imported soft wood unless (*a*) he is satisfied that it is required for a purpose of national importance as defined in form A., set out in the schedule annexed; (*b*) if the quantity sold to a single firm or individual amounts to one standard or more, he receives from the purchaser a certificate in form A. set out in the schedule.

2. Any person wishing to purchase imported soft wood for consumption whose needs cannot be met under Regulation 1 hereof may apply to the Director of Timber Supplies for a special permit. Such applications should be sent in duplicate in form B. set out in the schedule annexed.

If a permit is granted, a timber merchant is authorised to sell the amount stated therein in excess of the 1 per cent. authorised by Regulation 1 hereof.

3. If such imported soft wood is required for the execution of a Government contract or order, the applicant should attach to his application a certificate in form C. set out in the schedule hereto annexed, signed by a responsible officer of the Department concerned.

4. A permit upon which a timber merchant has supplied such imported soft wood in accordance with the provisions of Regulations 2 or 3 hereof shall be kept by him unless he can supply only a portion of the quantity required. In this event, he shall enter on such permit the amount of the imported soft wood supplied by him thereunder with the date, verified by his signature, and he shall return the permit for future presentation to another merchant who is thereby authorised to sell such amount as is necessary to make up the quantity supplied to the total quantity indicated on such permit.

By Order of the Army Council.

(Sgd.) N. F. B. Osborn,

Deputy Director of Army Contracts.

Dated April 14, 1917.

ARCHITECTS' BENEVOLENT SOCIETY.

THE annual general meeting of the subscribers and donors to the Architects' Benevolent Society was held in the rooms of the Royal Institute of British Architects, 9 Conduit Street, Hanover Square, W., on Thursday, April 12. Mr. Ernest Newton, A.R.A. (President of the Institute), was in the chair.

Mr. Percival Currey (the honorary secretary) read the sixty-seventh annual report of the Council, who had the satisfaction to state that the work of assistance undertaken by the Society since the outbreak of the war, as outlined in their previous report, had during the past year been usefully maintained. The Council had continued to administer the funds entrusted to their charge by the Government Committee on the Prevention and Relief of Distress by means of the Civic Surveys, as well as those collected by the Architects' War Committee. In the former case the sum of £6,500 had been received from the National Relief Fund for the payment of salaries of the workers in the three areas of the Surveys, viz.: Greater London, South Lancashire, and South Yorkshire. Ample testimony of the usefulness of the scheme, apart from its public utility, had been received from those for whom it had provided temporary employment. In many instances the Society had through the various Committees with which it co-operates been able to find more remunerative positions for the workers. The funds which had been administered on behalf of the Architects' War Committee, to which contributions had been received from time to time from the National Relief Fund, had been disbursed either in the payment of employment in connection with schemes promoted by the Professional Employment Committee, or in special grants in cases in which this form of assistance was considered to be the more helpful. The sum of £2,071 9*s.* 10*d.* had been distributed in this way. The Loan Fund of the Architects' War Committee, although small, had also helped to relieve a few members of the profession from financial difficulties caused by the war. The general work of the Society, had, meanwhile, proceeded as usual. Architects, or architects' assistants, whose circumstances could not be directly attributed to consequences involved by the stoppage of building operations through the war, as well as widows and orphans, had received their customary grants. The sum of £798 10*s.* had been paid in grants, and £251 to pensioners, thus making a total of £1,049 10*s.*

Notwithstanding the financial strain at the present time (the report proceeded) the loyalty of the subscribers and donors to the Society was a matter of great satisfaction to the Council. The subscriptions received amounted to £631 12*s.*, as compared with £636 19*s.* received in the previous year; while £313 7*s.* had been received in donations. Among the principal donors might be mentioned Sir R. Rowand Anderson, £100; Mr. J. T. Cackett, £50; Mr. Archibald M. Dunn, £20 10*s.*; Mr. Arthur Ashbridge, £10 10*s.*; Mr. Benjamin Ingelow, £10 10*s.*; The Tylers and Bricklayers Company, £10 10*s.*; Miss E. M. Charles, £10 10*s.*; Mr. A. N. Prentice, £10; Mr. A. E. Habershon, £10; Sir Ernest George, £7 7*s.*; Mr. Walter L. Spiers, £5 5*s.*; Mr. Lewis Solomon, £5 5*s.*; Mr. Arthur B. Plummer, £5 5*s.*; Mr. Henry Beswick, £5; and various smaller amounts. Sir A. Brumwell Thomas had increased his annual subscription to £5 5*s.* The donations received during the year, together with the balance carried over from the Capital Account, enabled the Society to invest £800 in the War Loan. In connection with this investment the Council desired to point out that under the by-laws the sums received in donations were allocated to the Capital Account for investment in trustee securities. The increase in the expenses of the Society was due to the extra cost of printing and legal charges incurred, in connection with the late Mr. G. Bertram Bulmer's will, to which the Society is residuary legatee for £2,400. The Council had the pleasure to nominate Mr. Ernest Newton as Trustee in the place of the late Mr. J. Macvicar Anderson, and Mr. Reginald St. A. Roumieu as Vice-President. The following, being the five senior members, retired by rotation from the Council: Mr. Basil Champneys, Mr. H. Chatfeild Clarke, Mr. Stanley Peach, Mr. Horace Porter and Mr. W. Campbell Jones. To fill the vacancies caused by these retirements the Council had the pleasure to nominate Mr. J. T. Cackett, Mr. Felix Clay, Mr. William Grellier, Mr. Edwin T. Hall, and Mr. Henry Lovegrove. In concluding their report the Council desired to acknowledge the useful work of co-operation which existed between the Society and the Professional Classes War Relief Council as well as the Artists' General Benevolent Institution. They would further wish to express their sincere thanks to the members of the staff of the Royal Institute of British Architects for their unfailing courtesy in all matters connected with the Society.

The balance-sheet which had been printed was taken as read.

The Chairman, in moving the adoption of the annual report, said he thought he was in a position to congratulate the contributors on much useful work accomplished during the year. In consequence of the war the Society

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had undertaken larger responsibilities, and had done its best to fulfil them. He need scarcely refer to the peculiar conditions in which the events of the past three years had placed architects, to the existing building regulations, and so on, which had so seriously affected architectural practice. The outcome of this state of affairs had been to cause financial stress to men who otherwise had no reason to believe they would be faced with the difficulties and anxieties of tightening purses. The Architects' War Committee, as they knew, at the outbreak of the war, sought to devise measures to alleviate those difficulties. The Civic Survey Joint Committee was also formed with the same purpose. An appeal was made to the profession for funds in the case of the former Committee, and the Civic Survey Joint Committee was successful in obtaining the financial support of the Government Committee on the Prevention and Relief of Distress. The money which had been received in both cases, amounting altogether to a considerable sum, had been administered by this Society. In addition to those spheres of activity there had been the ordinary philanthropic work independent of any cause created by the war. In connection with the general fund of the Society, it was satisfactory to note that notwithstanding the stress of present times there was practically no falling off in subscriptions as compared with the previous year, while over £300 was received in donations. It had been the aim of the Council for many years to extend the list of subscribers. The result was, perhaps, scarcely a matter for congratulation; certainly they could do with more general support. But the sustained loyalty of their general body of subscribers was a matter for congratulation. If they had not been able to add many names to the list of subscribers they had, at any rate, the satisfaction of knowing that very few names had been withdrawn. It was a fact that their largest bequests and donations during the history of the Society had been received from those who had been most familiar with its sphere of operations. He mentioned that with a view to engaging the sympathy and liberality of those who had so far refrained from sending the Society their contributions. They all knew how severely architects had suffered in consequence of the war; they also knew that there were many architects whose practices had rarely been so profitable. He would like to make a very special appeal to those latter gentlemen, either on behalf of the Society, or on behalf of the Architects' War Committee, whose funds it administered. It was satisfactory to know that the Society worked not only in harmonious co-operation with the Committees he had already referred to, but also with the Professional Classes War Relief Council and the Artists' General Benevolent Institution. Successful co-operation of that kind was useful in preventing overlapping; it also helped to give assistance which extended beyond immediate financial aid. His last word in moving the adoption of the report should be again to appeal to such of their professional brethren from whom they had so far received no practical support to contribute to their funds, as he was sure they realised that contributions were never more needed than at the present time.

Sir John Burnet, in seconding, observed that the Chairman had put the whole matter before them so clearly that he did not think he need add anything.

The report was then unanimously adopted.

The Hon. Secretary announced that apologies at inability to attend had been received from Mr. Bateman, Mr. Lutyens, who is in India, Mr. Pearce Edwards, and Mr. A. E. Kingwell.

The Chairman, as President of the Royal Institute of British Architects, was unanimously elected President of the Society, on the motion of Sir John Burnet, seconded by Mr. Campbell Jones.

Mr. Reginald St. Aubyn Roumieu was unanimously elected Vice-President of the Society, on the proposition of Mr. W. Hilton Nash, seconded by Mr. Lewis Solomon. A hearty vote of thanks was accorded the Council for their services in the past year.

The President and Vice President are members of the Council by virtue of their positions; and, on the motion of Mr. G. Scamell, the following gentlemen were elected the ordinary members of the Council for the session of 1917-18:—Mr. Walter L. Spiers, Mr. Percy B. Tubbs, Mr. W. Henry White, Sir John J. Burnet, Mr. William Woodward, Mr. Arthur Ashbridge, Mr. A. Saxon Snell, Mr. Lewis Solomon, Mr. J. T. Cackett, Mr. Felix Clay, Mr. Edwin T. Hall, Mr. William Grellier, Mr. Henry Lovegrove and Mr. Edwin J. Sadgrove (representative of the Society of Architects).

Mr. Roumieu proposed a vote of thanks to Mr. Hilton Nash and his re-election as honorary treasurer, observing that Mr. Nash was a favourite with all of them, and knew how to differ in a nice and kindly manner, without calling people bad names.

Mr. Osborn C. Hills seconded the motion which was unanimously adopted.

Mr. Hilton Nash, in replying, remarked that he was always asking for more money, but that was the treasurer's duty. It was very satisfactory to find that their subscriptions were only £5 less. He thought that was a really wonderful thing for an institution of that sort, and it showed what confidence architects put in them. If anyone could suggest how they could raise more money, or get more money, out of people, he should be pleased to hear their suggestions. He really did not know how they could do it in these hard times, when it was so difficult to extract money from people. Of course, they had now many more outlets for money than they had before the war, and so it was really necessary to get more money. Mr. Newton had said that a good many architects had been making a great deal of money since the war. He (Mr. Hilton Nash) would like to know their names. If the information was not confidential perhaps Mr. Newton would let the Society know their names, and write and explain why they should help the institution. The Society ought to be satisfied with the work they had done, but they ought never to be really satisfied in increasing their subscriptions and capital. Their capital amounted to £21,000, but the next point should be £30,000.

Mr. Henry Lovegrove proposed a vote of thanks to Mr. Percival Currey for his services as honorary secretary, and his re-election to that position. He said that only those who had served as secretaries of various societies could understand the work that had to be done. He thought in the Society there was a vast amount of work to be done, and it had always been done in a most courteous and kindly manner. They not only respected Mr. Currey as honorary secretary, but as a gentleman who behaved nicely to everybody. These were difficult times, and the country was going through such a strain that people had enough to do to pay expenses and income tax. He was sure they would all be sorry to hear that Mr. Wyatt Papworth, his son's partner, and one of their regular subscribers, had been killed at the Front. It quite upset him when the news came, for Mr. Papworth was almost like a son to him, and like a brother to his son.

Major Monson seconded the motion, which was unanimously adopted.

Mr. Percival Currey, in acknowledgment, said it really gave him great pleasure to do all he could, little as it was, for the Society. He owed a great deal to the most efficient assistance and kindness he had received from Mr. Dircks, their Assistant-Secretary, and every member of the Society.

On the motion of Mr. Lewis Solomon, a hearty vote of thanks was accorded to the retiring honorary auditors (Mr. Herbert Shepherd and Mr. Osborn C. Hills), and they were re-elected, together with Messrs. Saffery, Sons & Co., as professional auditors. The latter firm were thanked for their efficient services on the proposition of Mr. Currey.

Mr. Roumieu, in a few graceful sentences, proposed a vote of thanks to the Chairman for taking the chair on that occasion.

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Mr. Nash seconded, and the vote of thanks was warmly accorded.

The President, in replying, said it had been a matter of very considerable regret to him that during the last few months he had not been able to be in the chair upstairs at the ordinary meetings. In the first two years he did not think he missed one of the meetings, and they were always a great pleasure to him because they were always conducted with so much harmony, and one felt that the cases were really very carefully and sympathetically considered, and that while the money of the institution was not lavished and wasted, it was not given with a grudging hand. Mr. Nash had asked him to tell them who the architects were who had been making a lot of money. Wild horses would not drag their names from him. A year ago, or rather more, he (the President) sent a personal letter to a certain number of his architect acquaintances who he could not say he knew were making large sums of money, but whom he knew to be generous, and the result was, he thought, quite satisfactory. Mr. Dircks, who carried figures in his head, would no doubt be able to tell them off hand what the result of the personal appeal was, but it was not unsatisfactory, and he (Mr. Newton) did not like to do it again. Of course, he only appealed to people he knew, and he hoped those he did not appeal to, when they saw that the Society was expecting a little more from them, would feel that a personal appeal had been made to them with the strength of the whole of the Society. He regretted to have to inform them of the death of a member of the Council, Mr. Greenop, who was so well-known to most of them. A resolution of sympathy with the deceased gentleman's family would be submitted to the general body of the Institute at the next meeting.

On the motion of Mr. Nash, a vote of thanks was passed to the Royal Institute of British Architects for the use of their rooms, and the proceedings terminated.

THE EFFECT OF WAR CONDITIONS UPON THE PROPERTY MARKET (URBAN).*

By J. G. HEAD, F.S.I.

I HAVE been honoured by an invitation from the Council of the Surveyors' Institution to express an opinion upon the effect which the war conditions have had upon the values of property up to the present time, and as to the future effect which may be expected after the conclusion of peace.

It is possible that this great honour has been bestowed upon me because I was bold enough, in October, 1915, to utter, in another place, views as to the effect up to that time, to formulate reasons for the changes which had been observed, and even to attempt to forecast the position after the war. It is obvious that the last-named attempt could only be of a superficial and tentative kind, since not only would it be impossible to prophesy the result of the war, but even with the firm conviction that Great Britain and the Allies would be victorious, no one could foretell the financial and economic conditions under which the nation might labour even when that desired consummation was reached.

There were, it is true, certain broad facts, apparent to all, which could be registered, and certain acknowledged principles governing property values, which, when applied to those facts, pointed towards results which could be prognosticated with more or less confidence. The points raised were: Reasons for the drop in prices which had already taken place; principles tending to appreciate or depreciate values in the future; observations on the practical results which might reasonably be expected to attend the operations of those principles during the period following the war; and the present occasion affords the opportunity of bringing up to date the results of the war conditions, or noting how far events have justified those observations, and of seeing to what extent they justify the conclusions which were deduced therefrom.

In the first place, the tabulated results of auction sales at the London Mart, taken in conjunction with the universal experience of those dealing with landed securities, indicated a serious diminution in the volume of business done, and also in the prices obtained for those comparatively few properties which changed hands. Certain reasons were adduced in order to account for those results, such as the withdrawal of public interest from the property market owing to patriotic absorption in the war stifling investment and repressing all desire to launch out into new undertakings; the withdrawal of millions of the population from the world of commerce to that of military and naval service; the concentration of large numbers of those remaining upon work directly connected with the war; the breaking up of families by enlistment, rendering the establishment of new homes inconvenient, and consequently reducing the number of purchasers for occupation; the menace of the stability of all forms of investment, and the diversion of capital to the extent of millions of pounds into the War Loans; the high rate of interest afforded by gilt-edged securities (then 4½ per cent.) rendering house property comparatively unremunerative, unless bought at a price proportionately lower than its previous value.

These reasons may or may not cover the ground, but all will agree in the important point that these reasons still exist and still operate. They still tend with increased force to depress prices, and will continue to do so until they are entirely removed. The sums of money required for the prosecution of the war have risen from £3,000,000 to £6,000,000 per day. War loans have recently been paying 6 per cent., and their total have mounted to thousands of millions. The numbers engaged in the war are far higher than ever, conscription has replaced enlistment, all available areas are being scoured for recruits, and large numbers of manufacturing concerns have been taken over by the Government.

Every reason, therefore, adduced to explain the 1915 depreciation is emphasised. Indeed, all the influences engendered by war conditions are still at work, both appreciatory and depreciatory, and the disturbance of economic conditions has been phenomenal, profoundly affecting the finance of every country. In the countries involved in the hurly-burly of war, foundations have been tried, fabrics subjected to forces never contemplated, much that had every appearance of permanence has been uprooted, overturned, and destroyed, every security has been tested to the utmost limit, and that which remains unshaken under such conditions will deserve the confidence of investors.

Obviously, then, it is of the greatest importance to all concerned in the great landed interest to know how it has stood the searching test of war conditions. To this end inquiries have been made of representative auctioneers and surveyors in the various centres of England and Wales, returns have been obtained from the London and provincial auction marts, from the London County Council, and from the municipal representatives of other towns. The returns which have been made are the result, not only of the experience and judgment of many of the foremost men in our profession, but also of considerable labour in the preparation of the statistics on which that judgment is based. I take this opportunity of offering my best thanks to all those gentlemen who have so kindly and so efficiently furnished me with information on the subject we now have under consideration.

For the purposes of comparison the country has been divided into four divisions: the East Coast area, or that more immediately affected by the menace of enemy bombardment and Zeppelin raids; the Southern and Western districts, as being comparatively free from that menace; the Northern and Midland manufacturing areas; London and its surrounding neighbourhood.

Urban centres have been selected in the respective districts, and particulars gathered relative to the following

* Paper read at the ordinary general meeting of the Surveyors' Institution held on Monday, April 16.

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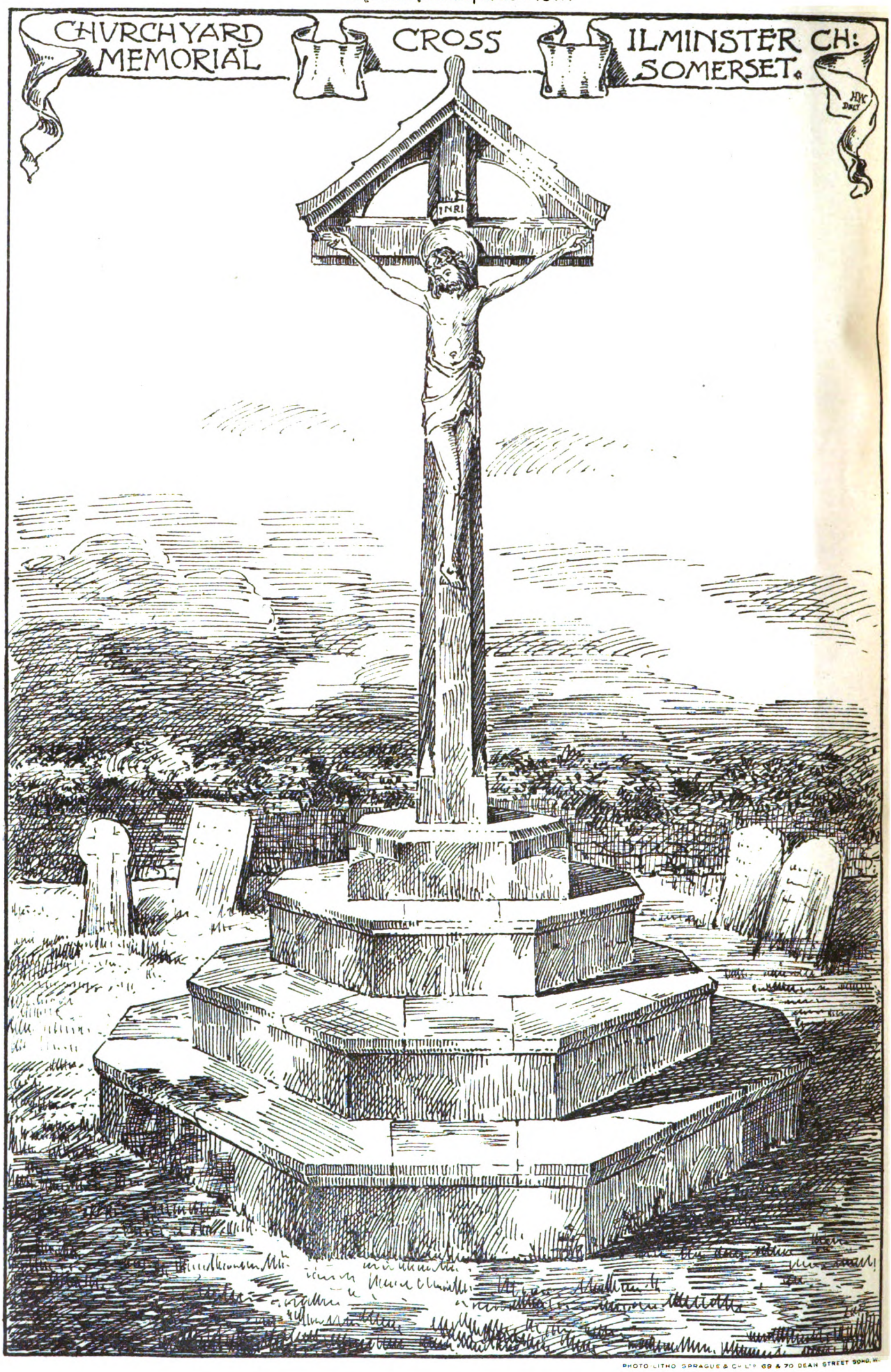


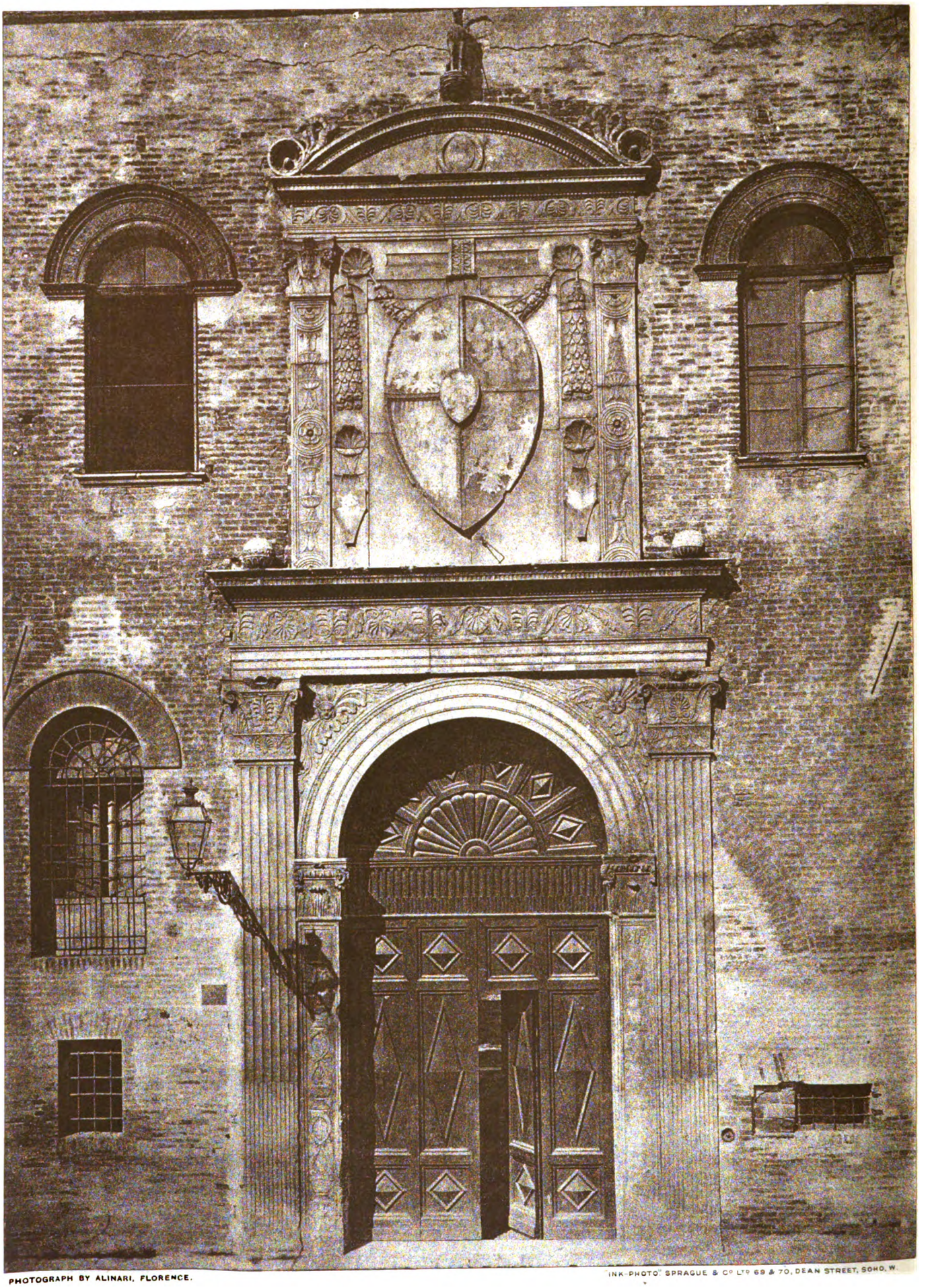
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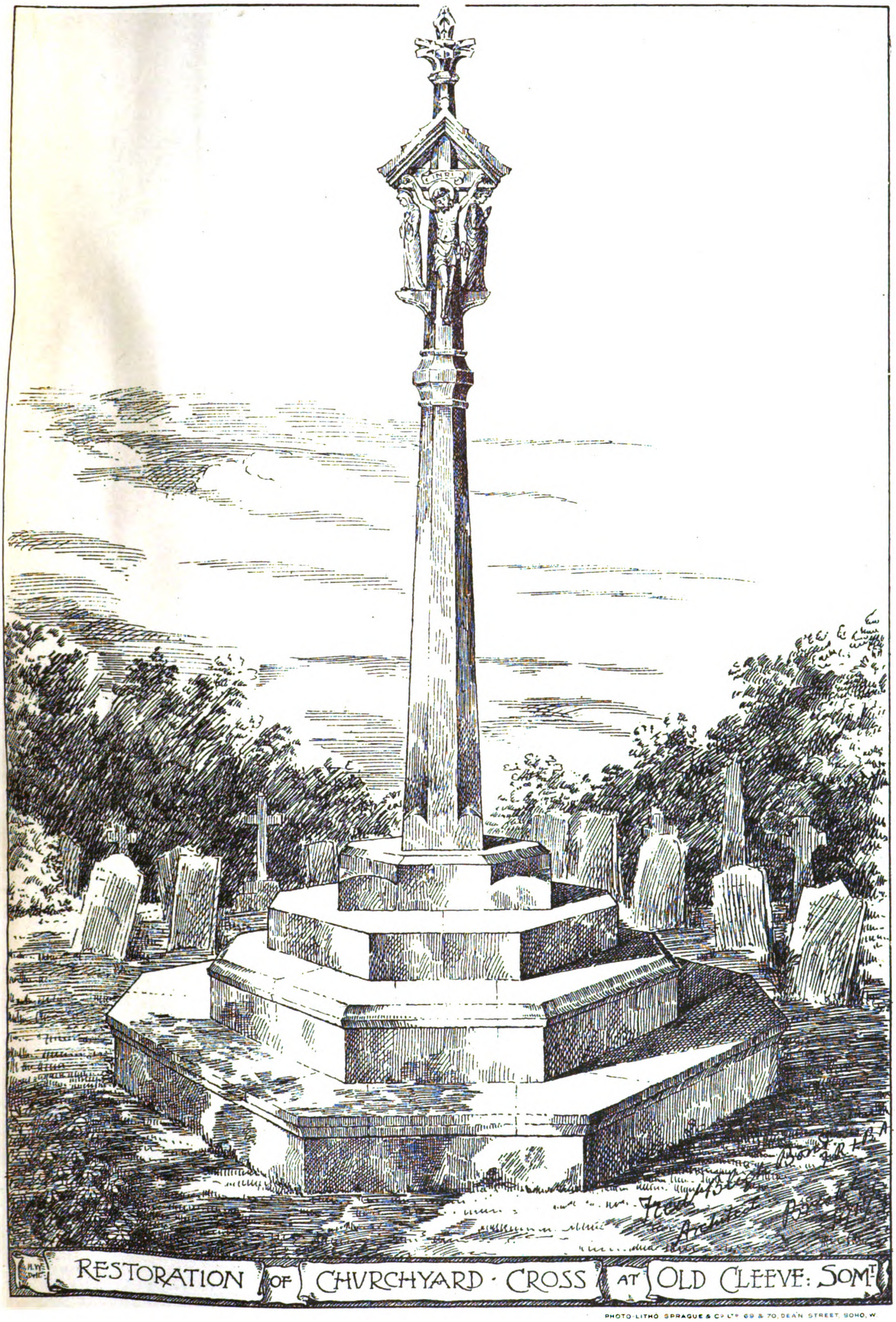


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subjects on the basis of a comparison with pre-war conditions: The number of sales and the resulting turnover; the selling prices of ground rents, factories, large and small shops, large and small dwelling-houses; the difficulty or otherwise of letting similar premises; the variation of rentals obtained for premises newly let; the difficulty or otherwise of negotiating mortgages, the rates of interest demanded, and the proportion of cover required; the effect upon prices and rentals of the increased cost of upkeep due to the rise in prices of labour and materials in the building trade.

The particulars gathered from various districts naturally show considerable variation, but there are certain items which show consistent results over the whole area, as follows:—

Sales by auction or private treaty, for instance, have been fewer by at least 60 per cent., and the turnover has been proportionately reduced. There have been very few dealings generally, and then only under the pressure of necessity or ardent desire. Freehold ground rents show a decline in selling price of some 20 per cent. Shops and dwelling-houses have sold principally for occupation, showing a decline of some 20 per cent. to 25 per cent.

Lettings, with few exceptions, show a sharp decline in the demand for large houses, for those of medium the demand has been almost stationary, with a slight tendency to decline, whereas small houses have let readily, the supply being by no means equal to the demand. For large and medium-sized shops there is a normal demand, but small shops have in some districts been at a discount. Factories have found tenants without difficulty.

Rentals have followed the demand indicated above, *i.e.*, they have fallen with regard to large houses; medium-sized properties have maintained their value, while the rentals of small houses have shown a marked upward tendency. In the case of large and medium-sized shops, rents have been maintained, although in highly rented districts dependent upon the custom of wealthy private residents it has been found necessary occasionally to make a temporary allowance of rent.

Mortgages have been increasingly difficult to obtain, and the rate of interest has increased by from 1 to 2 per cent., as much as 6 per cent. being asked in some cases.

In respect of building land transactions have been practically nil; the Government's recent restrictions in building have for a time put the finishing touch to the condition of an industry which was, owing to the war and other influences, in a very languishing state.

The cost of the upkeep of property has been materially raised by the increased cost of labour and materials in the building trade. The effect, however, has not yet been fully felt on property values. Eventually it must do one of two things, either it must be reflected in higher rents (where the landlord does the repairs), or, if these are unobtainable, capital values must suffer. At the moment it has had the effect of postponing all repairs, except those which are urgent, and of hardening rents, the latter operation being rendered possible by the shortage of that class of house principally concerned with the question of upkeep.

These factors are common to all districts, and show the main trend of the effect of the war conditions.

Dealing with the local phenomena, we find that it is on the East Coast that the effect is most apparent. In Margate, Ramsgate, Lowestoft, and towns similarly exposed, the business of property dealing has been brought to a standstill, numbers of residents have left for inland and western districts, and the influx of visitors has been small, having been temporarily diverted to more favourable situations.

In the Northern and Midland areas war work has stimulated all business connected therewith; houses have been filled up, the demand for factories has exceeded the supply, and money has flowed in and circulated freely.

The Southern and Western districts have profited by the exodus from the East, and rents have been maintained.

In London and its outer ring some districts have shown surprising business activity, which is reflected in the maintenance of rentals of nearly all classes of property, but, generally speaking, the main trend is similar to that prevailing throughout the country.

Within the county of London the returns of rate collection show that during the first year of the war "empties" increased only 5 per cent., and even then increase was in respect of shops and residences of high rental value rather than of properties of medium size and small houses.

On the whole it would appear that there has been no general increase in losses due to "empties."

In London we have also the advantage of the Auction Mart return, which furnishes us with the most representative guide as to the movement of the property market. A statement is given showing the amount of sales consummated during the years 1913, 1914, 1915, and 1916, from which we notice a diminution in volume up to the end of 1915, and a slight but encouraging increase since that time.

Summary of Auction Sales held at the Mart during the Years 1913-16.

1913	Jan.—March	£344,372	
	April—June	1,165,611	
	July—Sept.	313,351	
	Oct.—Dec.	522,603	
			£2,345,937
1914	Jan.—March	£400,141	
	April—June	962,505	
	July—Sept.	369,679	
	Oct.—Dec.	134,304	
			£1,866,629
1915	Jan.—March	£195,262	
	April—June	287,676	
	July—Sept.	162,341	
	Oct.—Dec.	158,391	
			£803,670
1916	Jan.—March	£147,457	
	April—June	288,434	
	July—Sept.	169,963	
	Oct.—Dec.	323,005	
			£928,859

Looking at the results set out above, we see that they present, as might be expected, some variety of detail, according to the local conditions prevailing. These variations are, however, but the cross-currents and internal eddies which accompany every flood, and make little or no difference to the strongly marked tendency operating over the whole country.

In estimating the significance of the results, it must be realised that that significance lies not in the absolute figures, nor even in the fact that prices have fallen since the outbreak of war; such a fall in capital value was inevitable, and has occurred with regard to all securities without exception; it lies rather in the comparison between the extent of the fall in the property market and that shown by other classes of investment. To appreciate this fully we must revert for a moment to the relation between the different classes of investment.

The basis of all investment is security. The ideal security is one in which the capital is safe and easily realised; in which the income is steady, regular in its payment, and free from trouble in collection. In return for such absolute security the lowest rate of interest which the state of the money market permits is accepted by the investor, and just so far as any individual investment departs from the ideal security, so much higher is the rate of interest which the investment is expected to pay.

As a matter of fact there is no investment whatever which exactly conforms to our definition of the ideal security, for even those which are designated "gilt-edged" are subject to fluctuations of capital value according to the greater or less value of money for the time being. Nevertheless, the gilt-edged is the nearest available approach to the ideal security, and, as such, it forms a datum with the rise and fall of which all other securities rise or fall more or less in proportion. For example.

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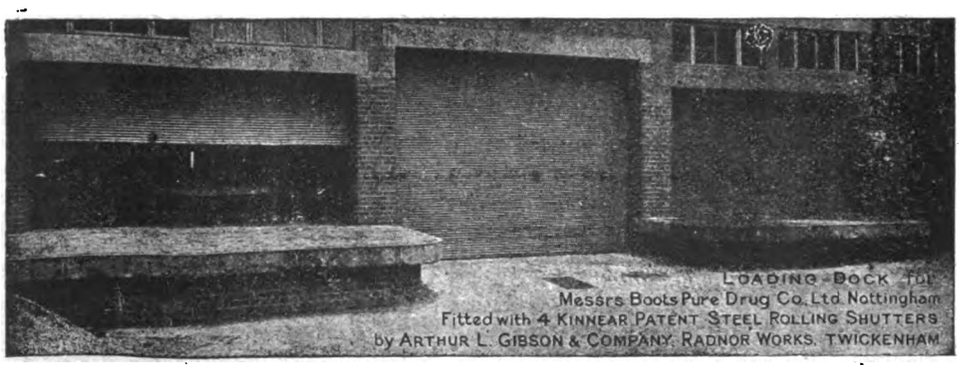
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in the times when gilt-edged securities (Consols) were paying 2½ per cent., investors were willing to buy freehold ground rents to pay 3 per cent., leasehold ground rents at 4 per cent., and freehold rack-rents at 5 per cent.; while leasehold rack-rents were expected to pay 6 per cent. to 8 per cent. according to circumstances.

If therefore we compare the fall in gilt-edged securities with that of the property market under circumstances which test both to the uttermost, we may look to obtain material from which to form a reliable opinion as to the stability or otherwise of landed investments, and to demonstrate to what extent they deserve the confidence of the investing public.

Let us therefore begin by comparing the movements of Consols with those of freehold ground rents, which may be described as the gilt-edged security of the property market, and which therefore afford the best comparison.

During the period January 1, 1914, to December 31, 1916, the highest and lowest prices of Consols were:—

1914	77⅛	66⅞
1915	69⅜	57
1916	61¾	56

showing a variation of more than 27 per cent. During the same period the fall in the sale price of freehold ground rents averaged 20 per cent.—a comparison in favour of the property market, and one which is valuable as being made between two investments which have in common absolute stability of income and the maximum degree of security for capital in their respective spheres.

With regard to other property investments, such as shops and residences, greater hazard attends capital and income alike, so that under the shock of war we might expect to find a large depreciation of capital value; indeed, it would be no reflection upon their excellence were that the case. Yet in actual fact the price of good leaseholds has declined only about 25 per cent.

Look now at the second essential of a good security—stability of income. We find it is true that the rents of large residences have declined, and that in certain districts reductions have been made in the rents of large shops for the duration of the war; but medium-sized properties have held their own in the matter of rental, while the uplifting of the smaller properties was so marked that an Act of Parliament had to be passed to prevent the rents being raised; and it is no exaggeration to say that, but for the Act, they would have risen throughout the country, not through the cupidity of landlords, but by the natural increase in value through the increased demand.

Again, if we look at mortgages, it is true that they are more difficult to negotiate; diversion of capital makes that inevitable. The rates of interest have been raised; again inevitable, since the interest on gilt-edged securities has been raised. But it is significant that while the interest on gilt-edged securities at one time rose from 3¼ to 6 per cent.—an increase of 2¾ per cent.—the highest rate demanded for mortgage interest is 6 per cent., showing a rise of 2 per cent. only over pre-war rate.

That the property market is sound and healthy is proved by the manner in which it has withstood the shock of the upheaval. Nevertheless, it cannot be denied that its volume has greatly sunk owing to the influences to which we have referred. True, there has been, during the last few months, a satisfactory movement towards revival; but, depending as it does upon the amount of money available for investment, it is inevitable that until easier monetary conditions prevail the property market must suffer and the amount of business done remain at a figure much below the normal. The natural sequence of events would be that, after trade, commerce, and industrial undertakings generally have achieved prosperity; after money has been accumulated to an extent which will permit of the releasing of some considerable portion of that which is now locked up in Government securities; after money has been found for the industrial expansion which is looked for; after these events, and not till then, would the property market resume its buoyancy of operation, capital values reviving automatically as gilt-edged interest declines. But to reach this stage will require the lapse of considerable time, and meanwhile the important market with which we are dealing must remain depressed, with results detrimental to the nation as well as to the individual, unless some practical assistance is forthcoming to meet the difficulty, and to bridge over the interval of the transition period.

(To be continued.)

Correspondence

[The Editor will not be responsible for the opinions expressed by Correspondents.]

Leaks from Tanks.

Sir,—Do you know of any material or process that could be employed to stop leaks in a concrete water tank? We have an inquiry from abroad.

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BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders, the address is, as a rule, local.)

ENGLAND.

Cheshire.

Stalybridge.—Warehouse, Palatine Square: extensions for Messrs. Cottrell & Son.

Durham.

Sunderland.—Jeffrey Hall: proposed extensions.

Essex.

East Ham.—Factory, Carlyle Road: enlargement for Messrs. Meister & Jaffe.

Hampshire.

Bordon.—Cinema: additions for Mr. F. Boulton.

Lancashire.

Didsbury.—Military Hospital, Wilmslow Road: additions.

Manchester.—Wellington Mills, Pollard Street East, Ancoats: additions.

Yorkshire.

Denholme.—Extensions for the Yeadon Dyeing Company.

SCOTLAND.

Ayr.—Premises, Kyle Street: alterations. Messrs. F. & R. Stone, contractors, Sandgate.

Dundee.—Dundee Dental Hospital: additions in Park Place.

Serbian Boys' Hostel, Perth Road: additions for Mr. G. Bonar.

Property, Blackscroft: alterations for J. Simson's Trustees and others.

House, Anerum Road: alterations for Mr. J. Walker.

Leslie.—Premises, High Street West: alterations for Mrs. Hood.

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THE ARCHITECT

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FORTHCOMING EVENTS.

Friday, April 27.

The London Society: In the Hall of the Society of Arts: Lecture entitled, "London after the War," by Mr. Paul Waterhouse, F.R.I.B.A., at 5.0 P.M.

Saturday, April 28.

Edinburgh Architectural Association: Visit to Paisley Abbey, &c., and the Parish Church (the old Abbey Nave); leader, Mr. P. MacGregor Chalmers, I.A., F.S.A. (Scot.), architect of the Restorations

Wednesday, May 2.

Royal Institute of British Architects: Adjourned Informal Conference on "Education of the Architect," at 3.30 P.M.

Royal Archæological Institute: In the Apartments of the Society of Antiquaries: Lecture entitled "Some Notes on Mediæval Masons' Marks and Graffiti," by Mr. G. G. Coulton, M.A., at 4.30 P.M.

Institution of Civil Engineers: Lecture entitled "The Standardisation of Engineering Materials, and its Influence on the Prosperity of the Country," by Sir John Wolfe Barry, K.C.B., LL.D., F.R.S., Past-President Inst.C.E., at 5.30 P.M.

Monday, May 7.

Royal Institute of British Architects: Annual General Meeting at 5.30 P.M.

Tuesday, May 8.

Royal Sanitary Institute: Discussion on "Collection and Disposal of House Refuse," to be opened by C. H. Cooper, M.Inst.C.E. (Borough Engineer, Wimbledon).

Wednesday, May 9.

Royal Society of Arts: Paper entitled "Works Organisation and Efficiency," by Prof. William Ripper, D.Eng., D.Sc., Vice-Chancellor of the University of Sheffield, at 4.30 P.M.

A NATIONAL HOUSING POLICY.

THE action of the National Housing and Town-planning Council in organising a Congress of selected representatives limited to a reasonable number in order to formulate the general lines of a national housing policy which could be recommended to the consideration of the Government is one that is worthy of commendation.

The Congress was invited to assume that the provision of the necessary capital for housing schemes by the State might be taken for granted, but it is obvious that everything depends upon the extent to which the Government is to be asked and is prepared to assist the finance of building, whether this is undertaken by local authorities, by public utility societies, or by private builders. We think that the Congress failed of its potential utility by this shelving of the financial question which is the crux of the whole matter.

Interested particularly as is the National Housing and Town-planning Council in the promotion of public utility societies, it savours of weakness and timidity merely to point out that the present conditions of a two-thirds loan and a limited interest of 5 per cent., under which such societies were able to operate in the past, are now impossible. The Congress should have boldly tackled the question and defined the alterations that are necessary to be made in the law and in the procedure laid down by the Public Works Loan Commissioners to enable public utility societies to exist and flourish after the war. This is a difficult question, we grant, but it has got to be answered by someone before the Government can furnish the necessary assistance, and the National Housing and Town-planning Council should be in a better position to give the answer than anyone else.

In Dundee's housing scheme, to which we drew attention last week, there is a definite assumption that the Government's grant in aid will be one-fourth of the capital cost of buildings, and that certain specified rents will be necessary to make the scheme pay its way on this assumption, with a proviso that if the grant is increased to one-third, the rents will be lower by 6*d.* a week all round. This is a precise financial proposition which can be at once considered on business lines both by the Dundee Town Council and the Government. The sponsors of public utility societies must be equally definite. They should particularly be careful to clearly distinguish between the extent to which they desire loans or grants in aid.

The National Housing and Town-planning Council rely, as the agencies that should be called on to use loans from the State, upon: (1) Action by local authorities in carrying into effect municipal housing schemes; (2) action by public utility societies; (3) action by local authorities in acquiring estates and leasing plots (after making the roads and planning the land in accordance with good town-planning standards) to public utility societies and to private builders at the lowest possible rentals and under conditions which shall secure the development of such estates on the best modern lines.

We are glad that the Council recognise the desirability, we might say the necessity, of enlisting the assistance of private enterprise in solving the housing problem which is altogether too stupendous to be undertaken by local authorities alone. Public utility societies are, of course, in effect merely a form of co-operative private enterprise.

In the conception of a national housing policy we do not, however, agree that the best interests of the State would be served by a limitation of public loans to the agencies selected by the Council. There is, in our opinion, no necessity for using the capital of the State to acquire estates in all cases. It would be more economical to formulate arrangements by which the State might become a partner with present landowners in the development of their estates "in accordance with good town-planning standards" and "imposing suitable restrictions on ground rents." The function of the local authorities should be the direction and supervision of such development.

The Congress formulated the proposal that "the Government should call on all city, county borough, town, rural and urban district councils in England and Wales, and on burghs and county committees in Scotland, to prepare and submit, within a period of three months, returns setting out the following details:—(*a*) The number of houses unfit for human habitation in their district; (*b*) the number of houses not in all respects reasonably fit for human habitation; (*c*) the extent to which existing working-class houses are overcrowded; (*d*) the number of unlet habitable dwellings at less than a certain rent; (*e*) the estimated number of houses which should be built (1) in the first year following the war to meet the more pressing needs, (2) in the five following years to secure the adequate development of the district; (*f*) the prospects of the needs described in (*e*) (1) and (2) being met by the operation of private enterprise."

These preliminary inquiries are all desirable and necessary, but they do not go far enough to furnish the

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Government with all the information necessary to enable them to draw up a comprehensive national housing policy. On the one hand they ignore a very important factor, particularly in urban housing, the "lodger" element, unless it be assumed that the terms "houses" and "habitable dwellings" can be applied to single-room tenements. On the other hand, they do not recognise that the era of high wages which the war has introduced and which has unquestionably come to stay has lifted the skilled artisan into the middle class and that he will require that some "working-class houses" shall in the near future be at least equal, if not superior, to those at present occupied by recipients of salaries rather than a weekly wage.

A scheme by which the Government should secure designs and plans for dwellings suitable to separate districts in the kingdom is proposed by the Congress in considerable detail, but here again the outlook is too restricted, the types of designs suggested being limited to cottages with three bedrooms. A national housing policy which contemplates only this class of dwelling is far from being sufficiently comprehensive.

The Congress also make proposals for expediting town planning and housing schemes by the passing of emergency and amending legislation obviating the delay which compliance with existing procedure entails. Such legislation in view of the urgency of the housing question cannot be said to be unnecessary.

Certain suggestions are made by the Congress relating to the cost and supply of building materials for housing at the close of the war. It is assumed that "towards the end of the war" there will be a slackening off in the output of shells and other munitions of war, and it is proposed that the workmen thus released should be employed in making fittings for houses. The assumption is open to question and indicates an expectation of unwisdom on the part of the Government. The slackening off anticipated by the Congress will, if the war is to be ended at the earliest possible moment, commence on the day that fighting stops. Then, by all means, turn on the munition workers to the preparation of housing material.

The Congress further propose that such industries as those of brick-making, cement-making, and quarrying should be regarded as key industries, and workmen from these industries at present in the Army should be demobilised before workmen in other industries. Such a proposal is natural from a gathering of housing enthusiasts. The Government have, however, to consider the interests of the nation as a whole, and whilst the Reconstruction Committee may be prepared to admit the building industry to a place in the front rank, it may not see its way to allow that industry to occupy that rank exclusively.

In view of the probability of a shortage of timber for building immediately after the war, the recommendation by the Congress that early consideration should be given by the Government to the possibilities of providing special transit facilities for the import of timber is not superfluous, but we believe that the timber importers of this country anticipate that the natural operation of peaceful commercial conditions will speedily reduce that shortage and bring about a drastic fall in prices.

The use of the material of dismantled temporary war buildings for housing advocated by some members of the National Housing and Town-planning Council and supported by the Congress we regard as a fad. Much of the material will be unsuitable, and practical experience shows that in building the use of old material costs more in adaptation than is saved by its less cost. It is only in the event of actual famine in material that the use of old stuff is advisable.

A SECOND course of lectures and discussions on public health problems under war conditions and after the war will be held in the Lecture Hall of the Royal Institute of Public Health on Wednesdays at four o'clock from now until the end of July.

NOTES AND COMMENTS.

THE suggestion in a daily paper that Cologne Cathedral should be held as a hostage for the safety of Laon is one that has our cordial sympathy from the æsthetic point of view. The world can better spare a dozen cathedrals of Cologne's merit than one Laon. The possibility of an immediate bombing of Cologne by aeroplanes following the destruction of Laon is undoubted, but whether it would be worth while is another matter. Reprisals are admitted by the laws of war as legitimate, but as military measures their value entirely depends upon their efficacy as deterrents rather than as punishment. It is precisely because we doubt this value that we are unable to give unqualified approval to the proposition to destroy Cologne Cathedral in reprisal for Laon.

The German Government simply cannot afford to let their people think they are deterred from any vandalism by the fear of what will happen to their national monuments after their army's defeat. They must still uphold the fiction that Germany is sure of an "honourable" peace, even if she magnanimously waives her claim for annexation and indemnity, which a very considerable portion of her population still believes to be capable of enforcement.

We feel convinced that the apparently senseless destruction which the Huns are perpetrating as they retire is not mere vandalism, but has its political aim. In our view, it is not even "frightfulness" intended to intimidate the French, but bluff meant to reassure the German nation that, whatever may be the termination of the war and whenever it may come, there will be no possibility of reparation and restoration being forced from Germany.

From a military point of view we believe that Field-Marshal Haig and General Nivelle would be loth to acquiesce in the detachment of the force of aeroplanes necessary to bombard Cologne from the more important work of hastening the day when the Germans will be driven completely out of France. Thus we reluctantly come to the conclusion that Cologne cannot be held as a sufficient hostage for Laon, and that neither the threat nor the accomplishment of its destruction would be worth while.

We heartily support the protest of our contemporary, the "Irish Builder," against the proposed use of red brick in the rebuilding of Dublin's Sackville Street. Anything more foreign to the genius loci could hardly be conceived. Stone, and nothing but stone, is the proper material for Sackville Street. It can be had in abundance quite convenient to the city and at reasonable prices, whereas red brick of facing quality must be imported.

The Newcastle-on-Tyne City Council and the Guild of the Newcastle Freemen have agreed to acquiesce in the proposition to allow the Royal Victoria Infirmary to occupy some 15 acres of the Castle Leazes as a site for the extension of the hospital buildings. The accommodation in the present buildings prior to the outbreak of war was 430 beds, and, even then, there was a large waiting list of applicants for treatment. When war broke out 200 beds were devoted to military patients, and to meet this situation temporary wards were erected giving accommodation for fifty-two beds. By utilising the out-patients' hall, and providing other beds throughout the hospital, the total number of beds was increased to 567, leaving available for the accommodation of civil patients 367 beds. There were over 2,000 cases on the waiting list, of which 1,500 were surgical cases, in a great number of which the bread-winner was unable to follow his employment, and the families were living on charity or on the rates.

The proposals provide for increased accommodation of from 430 to 844 beds. With regard to the orthopædic department, representations had repeatedly been made by the military authorities to the officials at the infirmary

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as to the urgent and pressing necessity of some provision being made at once for the orthopædic treatment of discharged soldiers. There would be provision for massage and electrical treatment and by remedial exercises. The present Nurses' Home accommodated about 120 nurses. It was proposed to add further accommodation to bring the number up to 300. A training-school for nurses would also be provided, where probationers would undergo a three-months' preliminary education before being sent to the wards. It was proposed to erect a private nursing institution from which nurses could be supplied for private cases outside, and to provide a separate home for about 100 servants.

It should scarcely have needed any prolonged investigation by the Health of Munition Workers' Committee to have arrived at the conclusions of their latest report on industrial efficiency and fatigue. Æsop taught the lesson centuries ago. In the report reference is made to a pronounced and common symptom of industrial fatigue which, the Committee say, appears to be the reflection in the workman's general health and spirits of the results of accumulated nervous fatigue, rather than a direct or measurable sign of it.

At the present time (the report goes on) in very many munition factories the complaint is made by workers, and not least by the most intelligent and willing of them, that they are feeling "done up" or "fair whacked," to use local phrases, and the evidence shows that this state of "staleness" is becoming increasingly common and obvious. By experienced managers and medical officers this condition of staleness is attributed almost wholly to persistent long hours and the deprivation of weekly rest.

The Committee express the opinion that proper attention earlier in the war to the need for weekly rest would have prevented a large part of the diminished capacity of this kind, and would have averted much costly and wasteful expenditure upon imperfect work. Stress is laid on a further point, and the report states: "For the avoidance of staleness in conditions of strenuous labour it is not enough to treat workmen in the bulk and to regulate daily and weekly rests upon a physiological basis devised for the average. If that be done, widespread evils like those too commonly present now may be avoided, but good management will consider always the individual workman as well. The Committee have no doubt that in very many cases, perhaps in almost all, in which staleness is well marked, or has even advanced to definite sickness, a single 'day off,' given occasionally at the right time, would have avoided much wasteful reduction of capacity, and in the worst cases the total loss of many days of work."

Enthusiasts in housing reform must seriously beware of opposition to the one-roomed dwelling which a recent writer in the "Glasgow Herald" goes so far as to condemn as an anachronism in these times of higher social conceptions. We still have amongst us old-age pensioners and others whose requirements and whose means do not postulate more than a single room, or bed-sitting-room that is to say, which should have its own adjunct of kitchen-scullery, &c.

The Manchester Education Committee have taken a right step, which other local authorities should follow, in advertising their willingness, provided there is a sufficient demand, to establish a further short course of instruction in the use of simple household tools and their application in dealing with the practical everyday problems in the home, such as small repairs to furniture, window and door fastenings, hinges, tap-washers, hanging and repair of pictures, curtains, blinds, and portière rods, care and fixing of gas mantles and electric-light bulbs, laying and mending carpets and linoleums, &c.; what to do in various emergencies, as escape of gas, &c.

Work of national importance, for which a timber merchant may now sell imported soft wood for consumption, is provisionally to be taken to include: (1) Work undertaken by private persons or bodies which is directly or indirectly on behalf of a Government Department, or work which has been recognised as necessary by a Government Department; (2) urgent repairs to public or private buildings or communications where necessary for the health and safety of the public; (3) packing cases or other wood required for the distribution of food, and other articles essential to the needs (as opposed to luxuries) of the population; (4) packing cases to contain goods for export.

Messrs. B. T. Batsford will shortly issue "English Church Woodwork," a study in craftsmanship during the mediæval period, the text of which has been written by Mr. Frank E. Howard, the well-known archæologist, of Oxford, while the illustrations are contributed by Mr. F. H. Crossley, of Chester. The book is the first to present a full survey of its great subject, and is a reminder of the extraordinary achievements of English craftsmen in the design and carving of church fittings, an art in which it is scarcely too much to claim for England a supremacy during later mediæval times. The striking and varied beauty and masterly execution of this native work will prove remarkable and surprising, even to those not ignorant of church art. The large number of original illustrations from photographs are arranged in the endeavour to define the characteristics of the different schools of local design prevalent at the time, particularly in East Anglia, the Midlands, and the South-Western counties, a fascinating subject which will repay further study and research.

A Supplement to the "Board of Trade Journal" of March 29 contains a complete list of articles the importation of which into the United Kingdom has been prohibited, except under licence, by Royal Proclamations of February 15, 1916, and subsequent dates, and in respect of which applications for licences should be addressed to the Controller, Department of Import Restrictions, 22 Carlisle Place, Westminster, London, S.W. 1. Copies of this supplement may be obtained at a cost of 3*d*. each (3½*d*. post free), either through any bookseller or directly from His Majesty's Stationery Office, Imperial House, Kingsway, London, W.C. 2.

A body called "The Homestead Association" has been formed with the following objects: To shelter disabled men; to endeavour to cure their disabilities by giving the men the comforts of a home, whether suffering from a permanent disability or not; to teach such occupations as the various disabilities will allow, special attention being paid to agricultural pursuits; and to co-operate with other bodies which may make it their business to provide employment to those whose condition of body is not perfect.

The problem before the Association is to build small houses, and to purchase and utilise existing houses, some of which will be suited for married couples, with a sufficiency of land attached so as to provide profitable employment for the occupiers to utilise all their powers, and while ensuring enough exercise not to over-tax the strength of the disabled men. At the same time the object is to enable a man to support himself from the fruits of his own work, so that if possible he will not have to spend his pension, but may allow it to accumulate so that when he is further recovered he may be in possession of some small amount of capital. In these houses will be sheltered, too, such men as cannot be expected to work, but who are in need of perfect rest and idleness. The amount of land to be purchased will, of course, depend on the amount of money which it is possible to get from the public or from other sources, but it is advisable in the first instance not to attempt to carry out any such work unless it can be carried out on a large scale, which is one of the conditions of economy.

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ILLUSTRATIONS.

HINTON HOUSE, BYFIELD, NORTHAMPTONSHIRE.

THIS house was built a few years ago from the designs of Mr. James A. Morris, A.R.S.A. The stone was quarried on the estate, and hewn after the early Northamptonshire manner with the axe by old estate and other workmen. It is of a rich yellowish-grey colour, warm in tone and mellowed where old dressed work was used. All the builder work was carried out by local contractors at a fixed percentage over cost, they supplying all the labour, and, except the stone, most of the material. The roofs are covered with red tiles, the windows have metal casements, and the finishings of the principal rooms, halls, and main staircase are of oak throughout. There is much beautiful timber in the park, the house lies well to the sun, and the views in several directions are extensive and beautiful.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

ON Wednesday, the 18th inst., Mr. F. W. Troup presided over the adjourned conference arranged by the Royal Institute of British Architects on the subject of "Architecture and Civilisation." The first meeting of this conference was held on January 24, when the subject was introduced by Professor Lethaby.

The Chairman having briefly recapitulated the proceedings at the first meeting,

Mr. Halsey Ricardo resumed the discussion. He said he would like to follow on apropos of certain things which Mr. Weir said at the previous meeting, and which to his mind went to the root of the matter. Mr. Weir told them that architecture was the index or feeling of the time, and secondly he emphasised the importance of education. He (Mr. Ricardo) thought they were liable every now and then not to estimate the importance of general feeling, and one was inclined to suppose that the great men as they periodically appeared as pioneers were the leaders and makers of things. Take the revival of Gothic architecture which was really a great thing at its time. They were inclined to associate it with the personal work of men like Butterfield, Street, and others, forgetting that after all they were really the index of a very strong feeling that backed them up. Without that immense popular force behind them their sporadic and individual efforts would not have had much effect. What gave those people their power was the great feeling that was behind them, and which was due to a protest against the eighteenth century quietism. They gradually sank back into another form of quietism—a certain sort of acceptance of things based on the idea that things would go on well provided they gave them time enough. They were now beginning to realise that there must be more communal feeling. On the question of education he would like the Institute to impress upon the Minister of Education the importance of giving education in citizenship, and he would like to see orderliness taught in our schools. There was a danger about orderliness in the way of architecture, which being a living art must develop and progress. There was a sort of order which they might describe as final. On the other hand, there was an order of growth, and in dealing with an art which was full of growth and life like architecture and living in towns that was the orderliness they wanted. One way of inducing that would be by representing to the Minister of Education that the teaching of crafts in the schools would help a great deal in that way. There was one other remark he would like to make which had nothing to do with education, and that was he did not think they quite realised the part that women had played in architecture. Mr. Dunn was saying at the last meeting that of all the things which architects had done successfully, the English house stood out prominently, especially the interior. That he took it was largely due to the fact that women had insisted upon having their say in the matter. If it could be extended to the ordinary people he thought they might be able to make their streets a little more orderly. He would like the Institute to memorialise the Minister of Education on the lines he had been talking about.

Mr. Vernon Crompton said he thought that Professor Lethaby deserved their thanks for bringing before the Institute definitely, and with considerable breadth of view, a type of subject which had been overlooked by them as a body. They were so bourgeois in outlook, so respectable and correct in attitude, that it was hardly considered the thing to concern themselves with architecture in relation to the sense of order, economy and fitness, and the many other qualities, values and activities which formed the basis of civilisation—architecture and political economy in fact. Professor Lethaby's paper was to a considerable extent a discussion of misbehaviour and bad manners. It was against that background of bad manners—that disorderly and inept type of life—that architecture was silhouetted. That was disconcerting in that it made so difficult architectural education and the other schemes in which they were interested. However valuable might be their schemes of architectural education, however pious the resolutions they might pass, they would always remain schemes or ideas working in a vacuum unless they coincided fairly with the sense of values of the nation at large. It was difficult for them to get away from their sentimental middle-class notions that the modern English home, the modern English factory, was a model for all the world. In stark reality the vast majority of English homes and factories built, say, within the last ten years were our disgrace. The relation of civilisation and architecture was one of cause and effect; the intellectual life or civilisation would give the intellectual architecture, while the sensuous life would produce the sensuous art. If the architecture of the present time was anarchic it showed that the civilisation of our time had muddled ideas and an irrational way of thinking. To seek to improve the architecture of the country by improving the education of architects was excellent as far as it went, but it was a more essential if less obvious duty, not only as citizens, but as architects, to put their energies into altering ideas about elementary and public school education and all those other things which directed the current of our civilisation. If they wished to have a clear idea as to what was wrong with architecture at its root they must cease to confine their discussions to styles, education, or æsthetics, the disorder of our streets, sound building, &c. That would merely be considering effects, leaving causes untouched That which had thrown architecture off its balance was synonymous with that which had dislocated our civilisation. In searching for the economic cause they had to recall the nature of eighteenth-century civilisation. They saw there the end of an aristocratic tradition. At the present day there was no aristocracy to speak of, but a plutocracy with no particular scholarship and no particular tradition. If he were asked to formulate the cause of the change he should say that since the latter half of the eighteenth century man's control over certain physical forces developed with extreme rapidity and at the expense of his powers in other directions. Hence the want of balance, and the dislocation in our civilisation which was the chief reason of the troubles they were discussing. The aristocratic age was gone for good, and in the democratic age which was before them they would not be able to produce excellent architecture unless the people lived an excellent life. He thought it was time for the Institute to lay aside its aloofness and go down into the arena as a propagandist body anxious to ally itself with engineers, master builders, and trades unionists, having a lively faith which it should set forth in a tractarian literature thoroughly well written. They had spread themselves very agreeably over the English Renaissance, the formal garden and such-like pleasantries. They should now voice their conviction not only upon the excellent suggestions put forward by Professor Lethaby, but also upon the relation of the architect and

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his work to all the vital economic problems by which they were being stifled. For some time past architecture appeared to have slipped off the true line of the evolution of things, partly because great architecture could not exist in an irreligious civilisation, but partly because they themselves had shut their own eyes to the reality of things.

Mr. H. V. Lanchester said that, taking first the position of architects towards the public, their most important duty was to endeavour to ensure that the nation secured the best architecture possible. They were not exonerated from that duty by the fact that the public was incapable of securing this by its own efforts. He thought that the Institute would do well to take a greater interest in the many problems linked up with their special sphere of activity. The London Society, the National Housing and Town Planning Association, the Garden Cities Association, and other Societies were doing work which was the proper function of the R.I.B.A. They, however, had ignored it, and other people had come along who were in touch with what existed in the vital forces of the country while they were in the clouds apart. The aim he had in mind was that more of our buildings should show the hand of the genuine architect rather than that of one to whom even the achievement of some simulation of the real thing was a laborious effort. They had in their ranks men of highly developed artistic faculties who, under our individualistic system, devoted but a tithe of their time to the exercise of those faculties. They had sound and ingenious planners and constructors who were called upon to go outside their own sphere to an almost equal extent. They had those whose skill lay in the tactful handling of difficulties; those who were specially capable as business organisers in respect to building work —indeed, it was not possible to classify all the shades of ability and temperament. But whatever they might be able to do for the future by improved methods of education and other measures, the fact remained that the profession offered employment for more than the number they could hope to find gifted with the faculty of architectural expression, and the problem would remain of getting the best possible output from the limited number so gifted. The French Government attempted that by the preferential treatment it accorded to the selected class of architects "diplômés," but they were not likely to get much immediate help from our own Government, already overburdened with more general problems. Their clients, the public, were not in a position to appreciate the difficulties. If anything was to be done they must do it for themselves, and the question before them was how? Assuming that they had the best will in the world with regard to co-operating with their professional brethren, it was not easy to see how such co-operation was to be effective, even with the most altruistic intentions, except by means of a professional Society. In his view such a Society must do more, in two ways at least, than had been customary hitherto. First, it must find a way to secure closer personal contact between all its members, and secondly, see that special qualities exhibited by any of its members received adequate recognition and opportunity. There were so many things that the Institute might do, but which it did not. In his opinion, from the moment of entry as a student there should be someone at hand from whom advice and help might be sought, and such relationship should continue. If that were effectively done it would facilitate the second requirement—viz., that merit should be promptly recognised and rewarded. It would be much easier to influence public bodies, and even other prospective employers of architects, if the Institute was recognised as devoting its chief interest to the advancement of the standard of architectural achievement without suspicion of professional bias or aggrandisement. They had already gone some way in justifying that claim, though but a short distance compared with that to be covered if they were to earn the confidence of the public, that when it placed itself in their hands as an adviser they as a body would act unreservedly in the interests of the community in respect to architecture, and would treat their own members as an organisation to be utilised, in groups or individually, in exactly the way by which the public interest would best be served, and in no other. He wished to suggest to the Council of the Institute that the time had come when matters of public architecture should be their main concern, especially at the evening meetings, and in education. He would also like them to consider the advisability of developing the organisation on lines which would bring the members into closer touch with one another, and he would like to see them bring forward a constructive policy for the betterment of our towns in connection with national housing and other matters.

Mr. Weir remarked that the previous speakers had covered much of the ground on which he felt very strongly. In Saturday's newspapers he saw a statement that the Minister of Education had got a scheme for the reform of education in the country which was shortly to be published. He believed that scheme included a good many points which had been raised at those discussions. There was the important question of craft training, and of affording apprentices time off in their working hours to get training such as they could not get in their workshops. He hoped that they would get a proper system of education running from the elementary school right up to the university.

Mr. Banister Fletcher said he would like to support what Mr. Ricardo and others had said about the importance of education. It seemed very logical that the discussion at the last meeting should have tended more and more as it proceeded towards that subject, because without education there was no continuity and without continuity there was no civilisation. The education most important to them was elementary education. The faculty that most needed training in our education, because it was the one that had been most grievously neglected, was the eye. There were so very few Englishmen who ever saw anything. If they started training children that they were to look at things and think about the impression that they got in their eyes, the whole attitude of the people that they had to build for would be entirely different. He thought they would find that want of observation rather a specially English fault. If they took the French or the American on the subject of architecture they met them more or less on their own ground. In America architecture was a common subject of conversation, and most intelligent people knew the names of the principal architects in America. That he thought was largely due to the spade work that had been done there in getting the American Institute of Architects recognised as a force to be reckoned with. The architect could not work in an environment which was entirely unsympathetic with the work in which he was engaged. As to the sort of education which they should aim at in this country, that was rather a matter of detail; but he did not think it should be architectural education. If they got general education in architecture given to the people they would have to get a very large staff to do it, for they would have to get new people who had no special education in building, and such people always fell back on the historical aspect of the question. If they could train the coming generation to use their eyes more, he believed that in ten or twenty years' time architects would have a much more hopeful environment to work in.

Mr. A. R. Jemmett said it had been pointed out that they could not get good architecture unless they had a good civilisation. He agreed, and a lot of them had been thinking for a good many years that the first thing they wanted was for people to live a decent sort of life; then they would have a decent architecture. They had been pointing out the defects in civilisation which had produced the present condition of things. The subject was a very large one, and he thought that it would be advisable to postpone the question of passing any resolutions until they had further discussions at future meetings.

Sir John Burnet remarked that he thought it would only be common sense if the Institute linked itself up with all bodies that were associated with building. They

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could do that without ceasing to be professional men. They were speaking not only as architects, but as individuals, and the first thing that bothered him was the consideration as to whether their own education was sufficiently perfect. Could the Institute insist on giving advice to a public body with its educational scheme as it was now? His own feeling was that they should determine right away to put their own house in order and fearlessly stand on their feet both as citizens and architects. He felt very strongly that quietly doing their own work they had a tremendously wide field. One of the first things they might do was to put very clearly before the Minister of Education and the Government the point as to how far it was honest that municipalities and other public bodies should spend the citizens' money except for the encouragement of good craftsmanship.

Mr. Sidney Greenslade said he was delighted with what had been said, and more particularly with the references that had been made to the importance of an increasing interest being taken in social affairs. Being a member of an Education Committee he was greatly interested in that subject. What he felt was that architects were not in touch with the public, and they were certainly not in touch with the lay Press as they ought to be. He was wondering whether they might not ask the Minister of Education to put architecture forward as a study for schools, even in the elementary. The history of architecture was almost as interesting as the history of fighting, and he would like to see the Institute take upon itself to suggest that some of its members might write books for teaching purposes. Professor Lethaby, for instance, he felt sure could write admirably on the subject, and if they did that they might help the Minister of Education, and he in turn might help them. He was convinced that there was no outlook in England for architecture until they had made the democracy interested in it.

The Conference before concluding agreed to the following resolutions:—

"We wish to suggest to the Council of the R.I.B.A. that the time has come when matters of public architecture should be their main concern, especially at the evening meetings and in education. It is desirable that a constructive policy for bettering all our towns be considered, as well as national housing and such questions. In promoting a policy of public usefulness the Institute might best find the way to its own proper development and status."

"That the Institute should represent to the Minister of Education the importance of insisting in all the universities and schools under his charge of education in the duties of citizenship in relation to the amenities of our towns and cities and the value of manual instruction in mental development."

"That the Council of the R.I.B.A. consider the possibility of developing its organisation on lines tending to bring its members into closer touch with each other and with all technical associations and those engaged on a constructive public policy."

ARCHITECTS AND NATIONAL SERVICE.

IN reference to the appeal recently issued through the Press to architects who sign the National Service Form N.S.V. 1, the Architects' War Committee understands that the forms filled in by professional men who make their status clear under the heading "(e) Occupation" upon the form, are referred to a special branch of the Service with its headquarters in London and branches in the provinces. In the case of such professional volunteers, unless they specially state under heading "(k)" that they are willing to do other than professional work they will not be liable to take up manual labour or other service of a non-professional character. Should any demand of such a nature be made in error, the volunteer is at liberty to require that his form be referred to the nearest Professional Classes Branch Office, where the mistake would be rectified.

THE LATE 2ND LIEUTENANT ALFRED WYATT PAPWORTH, R.E., A.R.I.B.A.

WE regret to announce the death of Mr. A. Wyatt Papworth, who was killed in action in France on April 2, at the age of 36 years.

The younger son of the late Wyatt Papworth, F.R.I.B.A., sometime Curator of Sir John Soane's Museum and editor of the "Dictionary of Architecture," Gwilt's "Encyclopædia of Architecture," and many other books, Mr. Papworth was articled to the late Mr. Arthur Cates, F.R.I.B.A., the Surveyor to the Office of Woods and Forests, and later spent some years in the offices of Messrs. Archer & Green, Mr. C. H. Read, of Cape Town, and other architects in Cape Town and Kobe (Japan). He became a student of the Royal Academy School of Architecture, and in 1901 won an R.I.B.A. medal of Merit for measured drawings of St. John's Church, Westminster, and was elected A.R.I.B.A. On his return from a three-year tour of the world he joined Mr. Gilbert H. Lovegrove, F.R.I.B.A., in practice as architects and surveyors.

Amongst the buildings carried out by the firm since Mr. Papworth joined it are: St. John's School, Hoxton; Three Crowns Hotel, Woolwich, illustrated in "The Architect"; the Nursery Training School, Hampstead, illustrated in "The Architect"; houses at Canterbury; the Mary Curzon Hostel for Women, King's Cross; the Clarendon Restaurant, Hammersmith; houses at Maidstone, Colchester, and Cheshunt; the Tiger p.h., Tower Hill, E.C.; and numerous business premises.

Mr. Papworth was for some years a member of the Art Standing Committee of the R.I.B.A., Surveyor to the Licensing Justices for the division of Paddington, a Liveryman of the Worshipful Company of Clothworkers, and a member of the Savage Club.

Among the comparatively few competitions in which a busy practice allowed him to submit designs were those for the National Museum of Wales and the English Club at Shanghai (illustrated in "The Architect"). The death of Lieut. Wyatt Papworth marks a further depletion in the ranks of those who were pre-eminently artist-architects.

THE LATE LIEUT. WALTER PORKESS.

LIEUTENANT WALTER ANDERSON PORKESS, of the Royal Flying Corps, who was killed in action whilst flying on February 10, was the youngest son of Mr. U. Porkess, builder, of Grimsby. He was on the staff of Messrs. Heal & Son, London, when he enlisted soon after the outbreak of war. After six months in the Royal Bucks Hussars he was transferred to the Inns of Court O.T.C., and later obtained a commission in the Sherwood Rangers Yeomanry, from which regiment he was attached to the Royal Flying Corps. Here he made rapid progress and won his "Wings" very quickly, and was soon sent over to France on active service. After six months of strenuous flying and many adventures and miraculous escapes in the aviation world, he came over for a well-earned Christmas leave. Early in January he had a fascinating trip back—flying over the English Channel to Somewhere in France—whole hearted for the fray, and now, like so many others of our gallant airmen—too soon in the midst of the "air battle"—he has laid down his life for his country.

AN announcement has been made by the Board of Trade to the effect that in terms of the powers conferred on them by the Defence of the Realm Regulations, they have decided to introduce a scheme for the pooling of all railway waggons belonging to private traders. The main feature of the scheme is that where a trader's waggon would otherwise be sent on a journey empty, the Board of Trade may take possession of the waggon for that journey and give directions with regard to its use and loading as they may think fit. The owner will be paid according to a scale to be agreed on, and in cases where an agreement is not come to the matter in dispute will be submitted to the Railway and Canal Commission for settlement.

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ENGLISH ALABASTERS OF THE EMBATTLED TYPE.

AT an ordinary meeting of the Royal Archæological Institute of Great Britain and Ireland, held in the apartments of the Society of Antiquaries at Burlington House, Piccadilly, W., on Wednesday, April 4, Sir Henry Howorth presiding, an interesting paper was read by Dr. Philip Nelson, F.S.A., on "English Alabasters of the Embattled Type."

Dr. Nelson observed that the earliest type of alabaster panel was that with simple moulded sides, from which another variety, which might be termed the embattled type, was developed towards the latter end of the fourteenth century. The various scenes in this second style of alabaster relief were carved in considerable prominence, beneath a battlemented canopy or cornice which pro-



THE ANNUNCIATION.—NELSON COLLECTION.

jected upwards and forwards, the whole design being carved upon a panel which usually measures 11 inches by 17, the sides and top of which were furnished with a carefully executed chamfer. A varying number of notches embattled the cornice, and it would appear that the earlier were provided with as many as three on each side, but too much importance might be attached to this point which might mark a school rather than a period. Touching the date of these panels, one was perhaps justified in regarding them as having been executed about the latter end of the fourteenth century, the earliest being of about 1375, while the later examples might be as recent as 1420. It was a matter of difficulty to speak with any certainty as to the school of carvers from whence these embattled panels may have come. If they accepted the earlier plain rectangular panels as emanating from the London school, then they must, he thought, look either to York or Nottingham as being the source of the embattled type. They knew, of course, that as early as 1367 Nottingham provided the reredos, at a cost of £200, for the Chapel of St. George at Windsor Castle, Peter Mason being responsible for the work, but it was not improbable that this was made up of alabaster images such as were found at Flawford, in the neighbourhood of Nottingham, rather than of a set of panels depicting incidents. It was matter for regret that so few specimens of the embattled type had been found in England, and of these the larger number had come to light in the neighbourhood of York, namely, those preserved at Ripon, Preston in Holderness, and the Ascension in his own collection. One example only, that at St. Mary's, Nottingham, had been found in the vicinity of the latter city, and this circumstance might argue their production as having principally occurred at York. It was difficult to say whether the examples to be found on the Continent were exported at the time of their production, or later at the period of the Reformation, though the occurrence of a series of such panels at Dantzig, a place having a very considerable trade with York in the fourteenth century, would perhaps point to their export in the ordinary course of business. There were two sub-varieties of the embattled type, dependent upon the manner in which the lower part of the panel was finished. In one, which he took to be the earlier, the ground under the figures ended abruptly some distance above the base, leaving beneath a hollow oblong recess. In the other variety, which was much more frequently found, the lower part of the panel had the slides sloped away, leaving the central two-thirds of the base in prominent relief. In the carving of the various subjects several points would strike the observer as of constant recurrence, namely, the presence of the sharp-pointed bascinet and camail, worn either with jupon or jerkin, in the Betrayals and the Resurrections, the early simple treatment of the garments and the postures of the figures, a straight outstretched arm appearing on practically every panel. In the earlier ex-



THE RESURRECTION.—NELSON COLLECTION.

amples, the garments were edged within and without with a narrow band of gold; it was only in the later specimens that the use of scarlet appeared commonly for the linings of the robes. The backgrounds of the panels were of gold adorned with rows of large gesso knobs, arranged diagonally. More rarely, as in the examples at Nottingham and New York, they were decorated with diagonal rows of small knobs, having at the points where these rows intersect knobs of larger size, whilst within each square so formed was a large central knob. The ground upon which the various figures stand was of dark

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or olive green, powdered with daisies, more numerous in the later examples, having red centres and white petals

"as it were a mede,
All full of freshe floures white and rede."

Short loops of latten wire on the reverse of each panel passed through the wooden backing and were held in place by wooden pegs, thus securing the various panels above the altar. In only one example had he met with



THE NATIVITY.—NELSON COLLECTION.

any other method of attachment, and that was in the Ascension, found near York, where strips of sheet latten occurred, which, by being splayed out, maintained the panel in position. From the remains of retables of the embattled type which had come down to them—and those only as loose panels, no complete retable being known, so far as he was aware, in its original setting—one was led to believe that these panels might have been mounted against a flat wooden support, probably painted, which stretched across the back of the altar, extending in height to the top of the panels. Since the sides of the panels were always moulded, one was forced to the conclusion that the edges were intended to be seen, and that, therefore, no wooden or other upright adornment would be introduced between the scenes, the painted background alone being visible. In number the anecdotal panels must have been arranged in sets of three or five, three being the earlier style, whilst judging from the figure of St. Paul, it was not improbable that flanking figures of saints might also have occurred. The embattled panels might be grouped into three main classes, according to the nature of the subjects represented, and these groups were, first, Virgin series; second, Passion series; third, Martyrdom series. As regarded the Virgin or Christmas retables this series might consist of three panels as in the earlier retables or it might extend to as many as five scenes in the later ones, but in any case the central subject would depict either the Resurrection or the Ascension; at least, the former arrangement was the case with the examples preserved at Preston in Holderness and in two retables in his own possession.

Of the Virgin series of embattled panels, there were two types of the Annunciation. The earlier type was known to them by a solitary example preserved in the Museum at Beauvais. In this, on the left side of the panel, stood the Virgin, crowned and nimbed, clad in a cloak, beneath which was a robe girt about the waist, and over the robe a kind of apron. The Virgin stood with her hands in front of her, and received the Archangel who was clothed in an albe and dalmatic; and whose hands were held out towards the Virgin. This was an extremely beautiful and dignified rendering of this incident, and one which evidently transmitted to them a traditional sculptural treatment. The later variety showed the Virgin kneeling in front of a desk, having a pendant cloth, on which rested an open book. Behind her on the left of the panel was the lily-pot. The Virgin, who was no doubt crowned, as in the later example on the tomb of Precentor Bullen, at Wells Cathedral, turned to receive the message from the Archangel, who, hovering above, bore a long scroll which falls behind the Virgin, whilst in the upper part of the panel was the Sacred Dove. On either side of the panel was a curtain which hung from the cornice, now unfortunately lost. Dr. Nelson said he should like to call attention to the close resemblance which existed between the design of this panel and that of the pendant roof boss at Patrington Church, Yorkshire, a resemblance which might further enforce the claim of York to be considered the school from whence these embattled alabasters may have originated. Of the Nativity only two specimens were known to him, namely, that in the British Museum and his own, both



THE CORONATION OF THE VIRGIN.—NELSON COLLECTION.

much alike, though the latter was perhaps the earlier. In every example of the Resurrection save one, in addition to the central figure of Our Lord, who wore a loin cloth and was draped with the shroud, four soldiers were present, resting in various attitudes suggestive of som-

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nolence. In one alone were there three soldiers only represented, and this panel was remarkable in other respects. Speaking in general terms of the soldiery, these were represented in full plate armour, with camail and pointed bascinet, and as wearing a broad belt across the hips, formed of square embossed plates. They wore either close fitting jupons or jerkins with full sleeves, long or short. In two examples shields appeared, in one of which the recumbent figure in the foreground had a long misericorde suspended from a narrow belt, in addition to the battle axe which appeared constantly in the foreground, while the figures behind held spears, one of which bore a pennon.



THE ASCENSION, YORK.—NELSON COLLECTION.

Of the Resurrection no less than ten examples were known, and these could be divided into two groups according to the posture of the central soldier. In one type the soldier was sitting up and facing to the right; in the other the soldier was lying down and supporting his chin on his right hand. As regarded the first type, an example in the Musée de St. Raymond, Toulouse, was remarkable in that the soldier on the right rested his left elbow on a short shield. In the Nelson specimen the central figure had a short sleeved jerkin, as had also the soldier on the left; two were armed with spears, and two with pole-axes. At Beauvais Museum the soldier on the right hand wore a long sleeved jerkin. In the example at Hopton Hall the tomb was almost horizontal, not raked down towards the right as in all the other examples, whilst there were in addition to the usual characters represented figures of two censing angels. In the second type, an example in Ripon Cathedral showed the figure of the soldier in the foreground wearing a much pleated long sleeved jerkin. This was part of the same retable as the Coronation of the Virgin. There were two specimens at Preston in Holderness, from both of which the cornice were missing. In an example in Bordeaux Cathedral the three lateral figures all faced towards the centre. The non-horizontal position of the tomb was to enforce the effect of the words "the earth did quake, and the rocks rent, and the graves were opened." Of the subject of the Adoration of the Magi three examples were known, of which the finest was that found at Preston in Holderness. There the Virgin, who was cloaked and nimbed, was represented as sitting up in a bed behind which was a curtain. Upon her knee was the Divine Child, who turned towards the kneeling figure of Balthazar, who presented a chalice of gold, whilst behind the bed were Melchior, who held a box of frankincense, and Caspar who pointed above. In front of Our Lord were the ox and the ass feeding from a moulded trough, and behind them was the seated figure of St. Joseph holding his staff. Of the Coronation of the Virgin there existed three well preserved examples, namely, those at Ripon, Preston in Holderness, and the one in his own collection, whilst in addition, fragments were to be seen at Whittlesford and at Scarborough. The fragment at Whittlesford, the earliest example, depicted the cloak of the Virgin as passing across her knees from her left to right. Our Lord's robe fell unconfined by any belt, whilst upon His knees rested the orb. Beneath the scene was a deep moulded base enhanced with painting. In the example in Ripon Cathedral the Virgin's cloak passed across her knees from her left to right, whilst above her head was the right hand of Christ extended in blessing.

Dr. Nelson went on to speak of the remarkable panel showing the Ascension which was found in the neighbourhood of York in 1689, and said it was the only representation of the subject which retained the embattled cornice. The spectators were arranged in two rows, and when cleaned the panel revealed much of its original scheme of colouring. The circumstance of its discovery was thus recorded on the doors of the case which was at that time made to contain it:—"This Peice was found in ye Ruines of A— house att — near York. Procur'd and Beautif'd by William Richardson of Northbierley, 1689." Of the Passion series, the only set which would appear to have retained all its panels was that preserved in the Museum at Carcassonne. Two examples of the Betrayal were known, one at Yarnton, Oxon, and the other in the Museum at Reading. There were three specimens of the Flagellation in existence, and examples of the Crucifixion were to be seen at Carcassonne, New York, Perigueux, Dublin, and at Grandborough, Bucks, that at Carcassonne being the earliest. The much injured panel at Grandborough was believed to have come from Biggin



[Photograph by F. H. Crossley.

THE BETRAYAL, YARNTON, OXON.

Priory. Two examples of the Pieta were known, and so far as Dr. Nelson was aware only two examples were known of the Entombment, that in the Metropolitan Museum at New York, and that in his own collection, and both had lost their canopies. Of the Descent into Hades the only example was that preserved in the Museum at Carcassonne. As already mentioned it was not improbable that the various retables were flanked by standing figures of saints placed beneath embattled canopies. An example

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of this type existed in the collection of Captain Mandés of Perigueux, and represented St. Paul, who bore in his right hand a closed book while in his left hand he held a large sword erect. The background of this piece was studded with gesso knobs in the usual manner. Touching the Martyrdom series, the St. John the Baptist series was known to us not only by a set of five panels preserved at Dantzig, but also by a panel in the British Museum. The only example of St. Bartholomew was that preserved in the Ashmolean Museum, Oxford. St. Mary's Church, Nottingham, contained a panel which might represent a scene from the life of St. William of York, or from that of St. Thomas of Canterbury. The scene showed a pope upon a daïs having four steps, seated between two standing cardinals. Before him knelt an archbishop whose extended hands were held by the pope in his left hand, whilst with his right hand he bestowed



[By permission of the Rev. DR. FIELD.

PANEL AT ST. MARY'S CHURCH, NOTTINGHAM.

his blessing. Behind the archbishop was his crossbearer, who held his cross-staff, while in the background were three other ecclesiastics. Two possibilities presented themselves for consideration in regard to the nature of this panel. The first was that it might represent the meeting of William, Archbishop of York, with Pope Eugennus III. The Archbishop was supposed to have been murdered in 1153 by means of poison introduced into a chalice, and miracles having occurred at his tomb in York Minster, he was canonised. The second alternative was that it depicted the resignation by Becket, at Sens, of his archiepiscopal cross and ring to the Pope Alexander III. As Nottingham was in the Diocese of York it was more than probable that the former was the correct interpretation of the subject.

It should be added that Dr. Nelson's paper was illustrated by a large number of excellent slides, which were most carefully exhibited by Mr. A. Goldston, by means of an electric lantern.

THE EFFECT OF WAR CONDITIONS UPON THE PROPERTY MARKET (URBAN).*

By J. G. HEAD, F.S.I.

(Continued from last week.)

THE need being thus proved, the duty now devolves upon us of showing that the property market is worthy of such assistance. In the first place then, if we return for a moment to our definition of the ideal security—one in which the capital is secure and the income stable—we shall see that the phenomena disclosed by our inquiries are most important in estimating the status of the property market in comparison with other forms of investment. We have, first, a variation in capital values less than that of the typical gilt-edged security, notwithstanding the fact that the property market prices are those realised under what we may call a "forced sale"; and next we find the rental or income exhibiting a steadiness which is remarkable when it is remembered that the rental which a prospective tenant is willing to pay for premises he is taking is that element which is the most susceptible to the influence of surrounding conditions.

It is amply proved, therefore, that the property market is no mere theatre for speculative enterprise, but that it provides a means of investment of the highest order. Nay, when it is realised that it carries with it influences of political and economic importance, in that ownership tends towards stability of thought and action, and that (the purchase of a home being frequently the first investment of savings) it lays the foundation of thrifty habits, it is, I venture to assert, no exaggeration to say that the property market is entitled to be considered as the premier security of the nation. But beyond all this, excellent as it is, there rises the fact that, bound up with the well-being of the property market, is the problem of the "Housing of the People." Unless the property market is in good condition houses cannot be built, and the people must suffer for want of that prime necessity of life—a roof to shelter them. That this is no idle statement is shown by the actually existing state of things. The shortage of dwellings of the smaller type is most serious. From every quarter the cry is the same, "We need more workmen's dwellings," "None to be had," "A famine in small houses." These are fair specimens of the reports received, while the correspondent from one midland town states that at least 14,000 are required in that district alone.

Let us look for a moment at the facts. According to Mr. A. W. Shelton, of the National Housing and Town Planning Council, about 80 per cent. of all the dwelling-houses in the country come within the description of small dwellings, *i.e.*, of the annual value of £20 downwards. To keep pace with the increase of population, the demands of sanitation, and the renewal of worn-out buildings, at least 100,000 should be built every year. The number actually constructed has fallen far below this necessary minimum; in fact, the annual numbers have shown a sharp decline, until during the year 1916 the number of small houses built is stated to have shrunk to the miserable total of some 10,000. The shortage at the present time reaches the formidable total of 500,000, and the correspondent who speaks of there being a "famine" uses a term which is not a whit too strong.

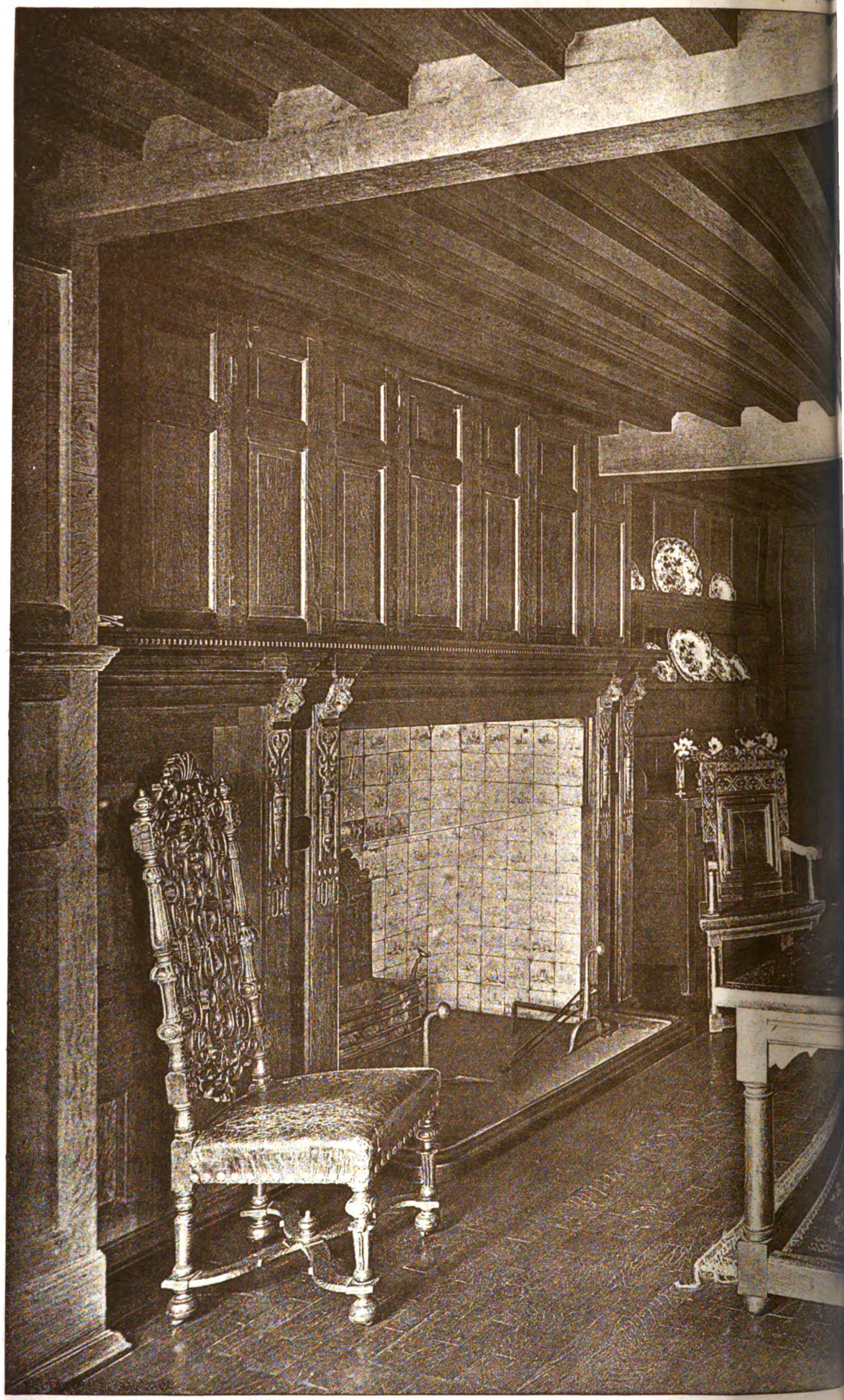
Now it is further shown by statistics that of the total number of small houses built, at least 97½ per cent. have been erected by private enterprise, the remaining insignificant fraction representing the entire output of national and municipal bodies and of public utility societies. Further, the difficulties and disadvantages of the provision of small houses by public bodies are so great that the conviction is forced upon us that it is still upon private enterprise that we must rely to secure an adequate provision for the necessary accommodation; but private moneys cannot be attracted to an unduly depressed market, and if

* Paper read at the ordinary general meeting of the Surveyors' Institution held on Monday, April 16.

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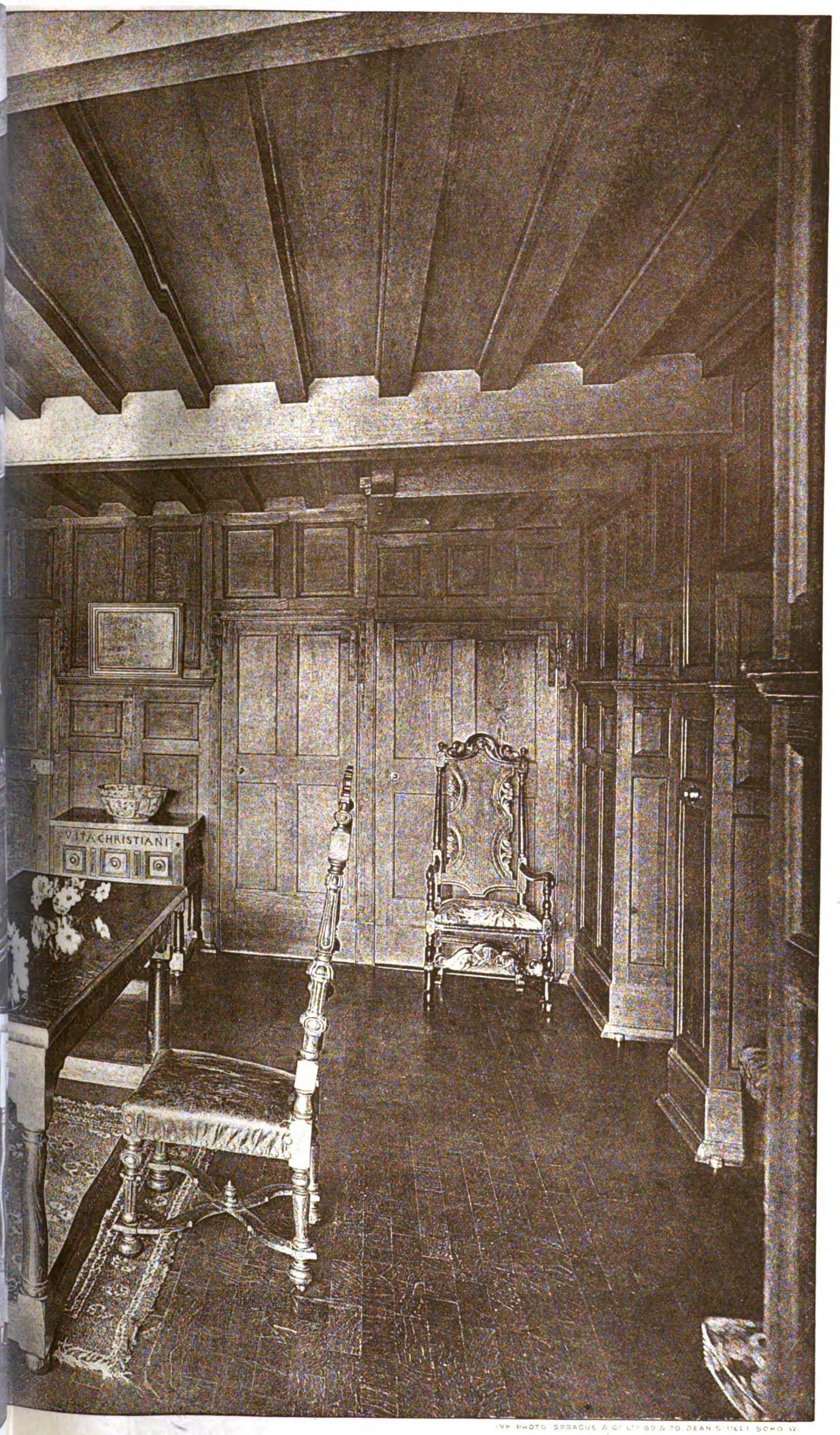


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the problem is to be satisfactorily solved, steps must be taken to relieve the depression by increasing the influx of capital.

Enough has been said, therefore, to show that the assistance of the property market is an object worthy of special effort.

As to the means to be adopted to this end two essentials stand out above all others:—Money must be forthcoming in the shape of liberal loans at moderate rates of interest; the property market must be freed from the paralysing influence of menacing legislation.

The provision of cheap money would render private enterprise a reasonably profitable undertaking and tend to induce capitalists to undertake the erection of houses. It would also stimulate the business of the property market as a whole, and sustain it over the transition period until its normal functions are restored in the ordinary course of commerce.

The method by which this cheap money is to be obtained should be our next consideration.

Under normal conditions a considerable proportion of the purchases of house property are assisted by means of loans, and in the existing circumstances the proportion of dealings requiring such assistance must of necessity increase, since fewer purchasers will be in a position to pay for the property outright. The loan is secured upon a mortgage of the property, and is advanced by a building society, bank, or from private funds. In the two latter cases a margin of one-third is required, building societies being content with somewhat less, and the interest is fixed by the current price of money.

In the immediate future, during the transition period, if the market is to be effectively assisted, the proportion of loan to purchase moneys must be more liberal, and at the lowest possible rate of interest. Hitherto all advances on dealings in property have been made solely upon the value of the property, and even in commerce, where a tradesman asks for an advance to enable him to prosecute some scheme which to him seems advantageous, the lender—usually a bank—requires the deposit of deeds of properties belonging to him, or of stocks or shares.

The essential feature of the security thus demanded is that it should be readily negotiable or convertible into money. For the purpose of our present consideration this may be termed "absolute security." Private lenders probably could not be expected to entertain any other form of security, but the remaining sources of borrowed capital, such as building societies, banks, or even the State, might well pass beyond this limit; indeed, building societies already lend a far larger proportion than the conventional two-thirds, securing themselves by repayment on the instalment system, and improving their position with every payment. That this is a sound method is shown by the extent and success of building societies throughout the kingdom. As to the ordinary banks, the strict lines of British banking are defined by "The Bankers' Magazine" as refraining from making advances where the security is not fluid or easily realisable, but of a nature likely to tie up money for a lengthened period so as to interfere with the prompt payment of sums deposited with them. Nevertheless, bankers have been accustomed to relax these rules in favour of customers of known integrity and ability, and in addition to make loans in furtherance of commercial undertakings considerably beyond the value of the actual securities lodged with them.

It is now, however, realised that at the end of the war conditions will be such as to make it necessary that such extended loans shall be the rule and not the exception. If they cannot be arranged through the medium of ordinary banks, an institution will be set up possessing ample powers adapted to that end. Such an institution is the proposed trade bank, which, being free from the restrictions of ordinary banking, will be in a position to foster commercial undertakings wherever advances of capital may be required. Such banks have long been known in France and other European countries, and have materially contributed to the commercial prosperity of the districts in which they exist. The feature of such institutions is that, after due inquiry into the merits of the scheme for which the advance is required, loans are arranged not only beyond the limits of any absolute security which may be available, but even in the entire absence thereof. It must not be concluded, however, that the loan is made without security. On the contrary, the security upon which the bank relies is fourfold—first, the merits of the particular scheme; next, a certain amount of control in the prosecution of the object; then the goodwill of the business and the financial standing of the borrower; and, lastly, his character and ability. These constitute what may be called "latent security," as distinguished from the "absolute security" above referred to.

Land banks also make advances to agriculturists upon similar lines, the essential point in every case being the existence of this "latent security."

If, then, we can show anything in the property market analogous to "latent security," or any alternative which will equally secure payment of interest and return of the borrowed capital, we shall have established the appropriateness of extending to the property market the facilities which commerce will derive from the operation of the trade bank. To make such assistance of general value it will be necessary to let it be known that all legitimate purchasers of property may hope to derive therefrom more liberal financial assistance than has hitherto been obtainable from the ordinary sources, while the enquiry which would precede the granting of such assistance would secure the exclusion of undesirably speculative schemes.

It should be observed that the assistance required by the property market is not in the shape of loans without absolute security, but only somewhat beyond the orthodox two-thirds proportion, and I claim that this additional accommodation can be adequately secured.

In the first place, in the case of business premises purchased for occupation, the borrower can produce the same form of "latent security" which is present in commercial undertakings, namely, the goodwill of his business, and his character, ability, and financial standing. Private houses purchased for occupation offer a similar security, but without the business goodwill.

In the case of pure investment—and this class would include the all-important section concerned with house production—the "latent security" is absent in the form in which we have defined it. There is, however, an effective substitute available, the key to which is to be found in the methods of building societies, viz., the regular and systematic repayment of interest and capital.

The building society system is not of itself sufficient to meet the difficulty, for the reason that building societies are local and limited in their action, and that they do not possess the co-ordination necessary to provide a consistent relieving action throughout the land such as would be necessary for our purpose. Further, they hold other people's money and must make a profit. They themselves borrow from banks, and are affected by varying rates of interest. What is wanted is a lending organisation operating throughout the land, and able to lend money at the lowest possible rate of interest consistent with the avoidance of loss. To do this would require a special organisation, and possible direct assistance from the State.

(To be concluded.)

THE INSTITUTION OF CIVIL ENGINEERS.

AT the Annual General Meeting of the Institution of Civil Engineers held on Tuesday evening, April 17, the result of the ballot for the election of officers was declared as follows:—

President: Mr. William Barton Worthington (Derby); Vice-Presidents: Mr. John A. F. Aspinall (Liverpool), Mr. Harry E. Jones (London), Sir John Purser Griffith (Dublin), Mr. John A. Brodie (Liverpool); other members of Council: Dr. Charles C. Carpenter (London), Dr.

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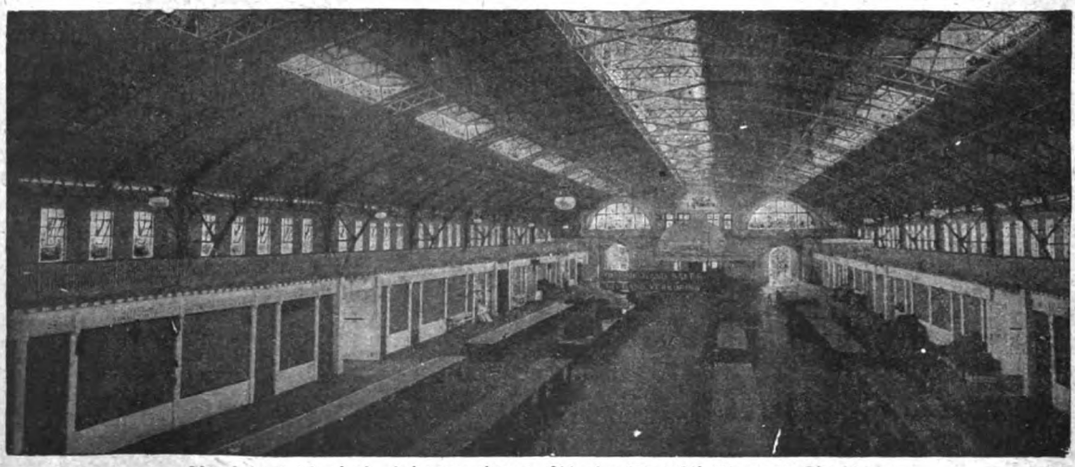
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The Council of the Institution of Civil Engineers have made the following awards for papers read and discussed during the session 1916-17:—

Telford Gold Medals to Messrs. G. W. Humphreys and J. B. Ball (London); George Stephenson Gold Medals to Messrs. P. V. O'Brien and John Parr (Perth, W.A.); Telford Premiums to Messrs. P. V. O'Brien (Perth, W.A.), J. L. Hodgson (Luton), W. Brown (Glasgow), and P. M. Crosthwaite (London); and a Crampton Prize to Mr. F. J. Waring, C.I.E. (London).

The awards for papers published in the Proceedings without discussion will be announced later.

ARCHITECT'S CLAIM FOR FEES.

IN the King's Bench Division on Friday, April 20, before Mr. Justice Ridley, Mr. Herbert Knight, an architect, sued the London Motor Hire Company, Ltd., for £190, fees alleged to be due for work done.

Mr. Price, representing the official liquidator of the Company, applied for an adjournment. Certain proceedings were now taking place, and he thought it would be more convenient if the hearing of the case was postponed.

Mr. Compton Smith opposed on behalf of the plaintiff.

Mr. Justice Ridley decided that the case should be heard.

Mr. Compton Smith stated that Mr. Knight was an architect, and a member of the Society of Architects. He had had thirty years' experience in the profession. The action was brought to recover £190, amount of agreed fee for carrying out work in connection with the erection of premises for the defendant Company in Whitefield Street. The charge was at the rate of 2 per cent. on the cost. After the work was completed Mr. Knight was unable to obtain his money.

Mr. Herbert Knight gave evidence in support of his claim.

There was no defence offered, and Mr. Justice Ridley entered judgment for the amount claimed with costs.

Correspondence

[The Editor will not be responsible for the opinions expressed by Correspondents.]

Leaks from Tanks.

SIR,—We notice in your issue of April 20 that in reply to an inquiry for a material to stop leaks in a concrete water tank you simply suggest two waterproofing compounds which you say are frequently efficacious. We should like to point out that Ironite will undoubtedly render a concrete tank water-tight, and is being largely used in place of asphalte for concrete roofs, water, oil, and benzol tanks, gas purifiers, &c., and has been extensively used by the War Office and Admiralty for concrete hutments, reservoirs, and other work. We may mention that Ironite has been tested to withstand very heavy water pressure in extremely difficult cases. Another important use to which Ironite is being put is that of waterproofing the many breeze slab buildings which are being erected. It is simply applied with a brush and saves the whole cost of rendering.—Yours, &c.,

For and on behalf of
The Ironite Co. Ltd.,
S. THORNELY MOTT,
Director.

BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders, the address is, as a rule, local.)

ENGLAND.

BEDFORDSHIRE.

Bedford.—No. 33 Kempston Road: addition for the Soldiers' Home Trustees.

DORSET.

Weymouth.—No. 51 St. Thomas Street: alterations for the Wilton Estate.

DURHAM.

Sunderland.—St. Benet's R.C. Church, Monkwearmouth: chapel.

HAMPSHIRE.

Aldershot.—House, Church Lane East: alteration. Mr. S. Friend, architect, 45A Grosvenor Road.

Premises, Station Road: alterations for Mr. John Eighteen.

Farnborough.—Concert Hall, Camp Road, for the Y.M.C.A.

HERTFORDSHIRE.

Watford.—Factory, &c., Rickmansworth Road, for Messrs. W. & D. Wilkins.

Shops, 293A High Street, for Mr. W. R. Gunton.

KENT.

Lydd.—Wesleyan Soldiers' Home, The Camp: addition.

LANCASHIRE.

Atherton.—Pump house, for the Howe Bridge Spinning Co., Ltd.

Blackburn.—Works, Grantham Street: extensions for Mr. A. A. Tattersall.

Bolton.—St. James' Church: proposed chapel.

Farnworth (near Bolton).—Foundry: extensions for Messrs. Richardson, Tuer & Co.

Tyldesley.—Mill: improvements for Messrs. Wright.

LINCOLNSHIRE.

Ruskington.—House. Messrs. W. Pattinson & Sons, Ltd., builders.

NORTHAMPTONSHIRE.

Peterborough.—Proposed Infant Welfare Hall, Fletton (£900).

NORTHUMBERLAND.

Newcastle-on-Tyne.—Parish Church, Byker: proposed vestry enlargement and improvement.

SOMERSET.

Yeovil.—Proposed works, for Messrs. Petters, Ltd.

STAFFORDSHIRE.

Stoke-on-Trent.—Parish Church: proposed chapel.

Walsall.—Factory, Bloxwich Road, Leamore, for Messrs. Nicholson & Lord.

SCOTLAND.

Glasgow.—Pattern shop, Petershill Road, for Sir W. G. Armstrong, Whitworth & Co., Ltd.

Shieldhall Works: addition for the Scottish Co-operative Wholesale Society, Ltd.

Riverbank Works, Pollokshaws: partial reconstruction for Mr. R. S. Brown.

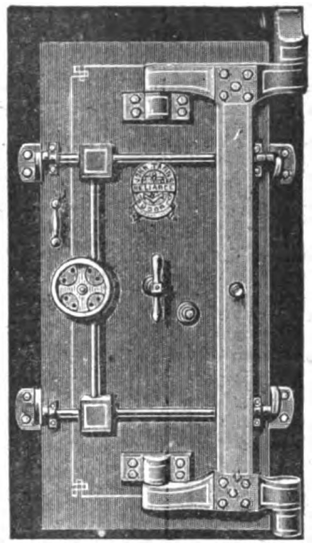
Works, Parkhead: additions for Sir W. Beardmore & Co., Ltd.

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THE ARCHITECT

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FORTHCOMING EVENTS.

Monday, May 7.

Royal Institute of British Architects : Annual General Meeting at 5.30 P.M.

Tuesday, May 8.

Royal Sanitary Institute : Discussion on "Collection and Disposal of House Refuse," to be opened by C. H. Cooper, M.Inst.C.E. (Borough Engineer, Wimbledon), at 5 P.M.

Wednesday, May 9.

Royal Society of Arts : Paper entitled "Works Organisation and Efficiency," by Prof. William Ripper, D.Eng., D.Sc., Vice-Chancellor of the University of Sheffield, at 4.30 P.M.

Wednesday, May 16.

Royal Institute of British Architects : Informal Conference on "Co-operation in Design"; opener, Mr. A. D. Jemmett, at 3.30 P.M.

Thursday, May 24.

Concrete Institute : Eighth Annual General Meeting, at 5.30 P.M.

Saturday, May 26.

Edinburgh Architectural Association : Visit to Riccarton House, Currie.

Friday, June 1.

Town Planning Institute : Paper entitled "Draft Act, with respect to Planning and Regulating the Use and Development of Land for Building Purposes in Cities, Towns, and Rural Municipalities in Canada," by Mr. Thomas Adams, F.S.I., at 6 P.M.

Monday, June 4.

Royal Institute of British Architects : General Meeting.

Wednesday, June 6.

Royal Archæological Institute :

Saturday, June 9.

Edinburgh Architectural Association : Visit to Inveresk.

ARCHITECTURE AND CIVILISATION.

THE whole trend of the discussion at the Conference held by the Royal Institute of British Architects on the subject of "Architecture and Civilisation" is in itself an evidence that the architecture of any particular epoch is veritably a reflection of the national life of the time. We to-day are living in the midst of a tremendous upheaval of existing standards in sociological conditions, an era of new departure and fresh formation. This new era had, indeed, found its inception before the war, and was, almost unnoticed, save by some acute and thoughtful observers, proceeding slowly in development, but has now, under the pressure of the titanic struggle for existence in which we are at present engaged, leapt at once into full-grown stature.

The industrialism of the nineteenth century which succeeded the aristocratic age of the eighteenth was essentially individualistic. Its triumphs were the achievements of individuals, each playing for his own hand; its troubles, in the conflicts of capital and labour, were alike individualistic, although on occasion the individual might be a conglomerate trade-union or employers' association. No wonder, then, that the architecture produced by the great men, by Street, by Butterfield, by Burges, was personal and individual, even if they were impelled in a particular direction by the wave behind them of the Gothic Revival. Equally, also, the travesties of architecture produced in Professor Lethaby's "Horrible Holborn and the Silly Strand" were the personal and individual concoctions of men who were not great artists or even capable architects.

The new spirit which is shaping our whole national life is communal instead of individualist. On the higher plane we see the recognition by the great communities that have sprung from British colonies that they are no longer to stand as individual Dominions, but that they are components of a British Empire. In industry there is the realisation, perhaps at present tentative and incomplete, that the true interest of employer and employed lies in co-operation and co-ordination rather than in separatism of organisation and outlook. Even in trade we see a happy tendency to mutual helpfulness on a national and even Imperial basis rather than an internecine struggle for individual advantage.

The inevitable reflection of national spirit upon architecture has impelled the thoughtful minds amongst the speakers at the R.I.B.A. Conference to the expression of the ideas that were promulgated as to the position which the practitioners of architecture, particularly in the attitude of the corporate body which is their representative, ought to assume in the new epoch of the national life.

This is no time for acrimonious discussion as to whether Architecture is a Profession or an Art, for the consideration of nice questions of professional etiquette, for archæological dissertations on the nuances of historical styles. It is the time for the Royal Institute of British Architects to regard itself as the minister of public service rather than the guardian of the rights and privileges of architects, as the leader, in respect of architecture, using the term in its widest sense, in the promotion of the sense of citizenship, of a pride in the good order, the convenience, the well-being and the comeliness of the city.

To the average Englishman, and particularly to the average Londoner, London is not a reality. It is a place to which he goes for work, for business, for pleasure; but it has no existence as an entity of which he has a personal sense of possession or of which he regards himself as a component. He does not pride himself on being "a citizen of no mean city." He does not even think of himself as a citizen, and he is utterly indifferent as to whether the city is mean or not.

The indifference of the Londoner to the London of his working day accompanies him usually to that particular borough or suburb in which he makes his home. What proportion of Londoners know anything at all about the corporate life of the district in which they reside, of the constitution or action of the local council who expend their contribution to the rates? The same indifference is seen, though in a lesser degree, in other large cities of the kingdom, and with still diminishing extent in smaller towns, until in some quite small communities there may be found to exist a very fair approximation to the civic spirit.

One of the first endeavours then of the Royal Institute of British Architects should be the promotion of the civic spirit, the feeling of citizenship in London and other large cities. True it is, as was said at the Conference, that education in citizenship should commence with elementary education, but it should not end there, and whilst the Royal Institute may rightly take its part in impressing upon the Board of Education the necessity for elementary education in citizenship, recognising that this spirit or faculty is concerned with many things besides architecture, the fostering of civic pride should be

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extended to those who are far past their days of elementary education.

By every means in its power, some only of which were indicated at the Congress, the Royal Institute should endeavour to waken the interest of the public in all that civic architecture, in its widest significance, connotes. Not merely street improvements, town planning, garden suburbs, or even fine public buildings, but, as Professor Lethaby put it, "order, fitness and soundness" in all things appertaining to civic life.

Especial emphasis might very well be laid upon the education of the citizen to really see things. As Gladstone once very well put it, the ordinary Englishman may appreciate the beautiful, but he does not hate ugliness. The reason for this lack of aversion is that he does not "see" the inanities of Holborn and the Strand. Their physical existence may impress itself upon the retina but no impression, consciously recognised, is made upon his understanding or his imagination. If he could see them and realise them as they really are a sense of aversion would be inevitable, and this would be the first step towards their prohibition and, as opportunity offered, their removal.

The resolutions adopted by the Conference form a very good basis for the inception of the public policy which should actuate the Royal Institute, and we trust that those resolutions will not share the fate of so many pious expressions of opinion put forward at congresses, but may become the foundation of a vigorous propaganda.

There will be, of course, some meaner spirits to whom such a measure may seem pure altruism of no benefit to themselves, but these may be sure that they are in a backwater of their own and out of touch with the flowing stream of mutual helpfulness which is the dominant spirit of our national life at the present time, and which in its onward flow carries all its passengers to happier and brighter conditions.

NOTES AND COMMENTS.

We offer our hearty congratulations to the architectural profession as well as to Sir Ernest George on his election to the full dignity of a Royal Academician. The honour is, as everyone will admit, most richly deserved, and has, indeed, been only too long delayed. Sir Ernest George is one of whom we are all proud, not only for his worth as an architect, but for the position he has achieved as an etcher and a painter. Sir Ernest has, too, inspired affection as well as pride in the hearts of all those who have had the good fortune of his personal acquaintance.

The Council of Sheffield University have taken an excellent step in the establishment of a Chair in Civic Art, but many, no doubt, will regard the appointment of Mr. William Rothenstein as its first occupant with some misgivings as to the suitability of one who is best known as a painter for the position. We understand that in establishing a Chair of Civic Art the Council of Sheffield University feel that great benefit would accrue to an industrial city like Sheffield by the development of its appreciation of the claims of art, and that they hope that the establishment of this professorship will lead to substantial results in this great industrial district.

The duties of the new position will to a great extent be outlined and arranged by the Professor. His own enthusiasm for the work will dictate his policy; but he will certainly find time to give lectures both to University students and the general public on the subject. The object of the Council in establishing the Chair is to bring industry and art in Sheffield into closer relationship with each other.

Mr. Rothenstein was born in Bradford in 1872, and is therefore a local man. He studied in London and Paris. Among Mr. Rothenstein's pictures are portraits of Sir Francis Darwin, Dr. Furnival, Sir Leslie Stephen, Sir Philip Unwin, Mr. Augustus John, and M. Auguste Rodin, the famous French sculptor. His other well-known pictures are: "Corner of Talmud School" (Oldham Corporation Gallery); "Jews Mourning in a Synagogue" (Tate Gallery); and "Portrait of Charles Conder" (in the Luxembourg). There is a large collection of Mr. Rothenstein's prints and drawings in the Print Room of the British Museum.

The Education Committee of the London County Council report that in October, 1915, the Council was approached by the Professional Classes War Relief Council with a proposal that the walls of certain Council elementary schools should be decorated with friezes and panels, the decorations to remain the property of the Council. The principal object of the proposal was to find work for artists in distress owing to the war. A scheme of decoration illustrative of the life and industry of the British Dominions beyond the seas was subsequently approved by the Council, and has been carried out in the boys' hall of the Devon's Road School (Bow and Bromley).

The Professional Classes War Relief Council have now offered to arrange for the decoration of another school, somewhat in the style of the Devon's Road school, and for the same objects, and have expressed the opinion that a school in a very poor neighbourhood, such as the Paddington district, should be selected. The names of six schools in this and adjoining districts were accordingly submitted to the war relief council, and the Committee have agreed to their selection of the Senior Street school, Harrow Road, Paddington. The scheme of decoration will be carried out in the boys' hall on the first floor. The war relief council have appointed a sub-committee to consider the proposal in detail, and the Education Committee will report later particulars of the scheme to be carried out.

It appears that there is to be a struggle between Government Departments as to the basis on which the coming Ministry of Health shall be established. The London Insurance Committee on the 26th ult. referred to a sub-committee a resolution urging the Government to set up a representative committee to investigate and advise upon the best methods that should be adopted to form a Ministry of Health entirely dissociated from the Local Government Board, but which, with the National Health Insurance organisations as an integral part, should unify the existing health departments of the country.

The Building Acts Committee of the London County Council report as follows:—

We have extended for another year the period of office of the undermentioned district surveyors who have passed the retiring age limit—Mr. A. Ashbridge (district of St. Marylebone) and Mr. T. E. Mundy (district of Chelsea); we have appointed Mr. O. C. Hills district surveyor for the district of the Strand, to act during the pleasure of the Council as interim district surveyor for St. Margaret's, &c., Westminster, in place of Mr. P. I. Elton. Mr. Elton is now on war service, but he had, since June 1, 1916, been acting as interim district surveyor for this district. Mr. Elton is also district surveyor for the district of Putney and Roehampton, and we have approved the appointment of Mr. R. Elsey Smith as deputy district surveyor for this district during Mr. Elton's absence. We have approved, under Section 141 of the London Building Act, 1894, the situation of district surveyors' offices in the undermentioned cases—district of City of London, East, No. 223 Bishopsgate; district of Kensington, South, No. 268 Earl's Court Road; district of Bethnal Green, West, No. 130 Whitechapel High Street; district of St. Margaret's, &c., Westminster, No. 60 Haymarket. The City Corporation or the Metropolitan Borough Council concerned has in each case been notified in accordance with the provisions of the section.

The improvement of inland water transport stimulates the adoption of new devices to supersede towage by superannuated horses on canals. Amongst these is

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the use of detachable motor engines. The new device for the propulsion of canal barges is the invention of Messrs. Coggins & Arthur, coal factors and colliery agents, Birmingham, in conjunction with Mr. A. E. Hooke. The motor employed is a four-cylinder 17-h.p. marine engine capable of hauling two boats with a load of 100 tons. It is mounted on the top of the cabin, and controlled from the helm. Petrol is employed for starting, and paraffin when running. The engine and attachments can be transhipped from one barge to another in a few minutes, and it is claimed that its use means economy in time and money by comparison with haulage by horse.

While the wastage of the Yorkshire cliffs is deplorable, the result is sometimes of advantage to the geologist and antiquary. Recently, in the vicinity of Scarborough, a fall of the cliff has revealed a hoard of twenty bronze weapons, which consisted of battle-axes, spears, chisels, gouges, portions of a sword, &c. Twelve of the axes, of the socketed type, are perfect. One shows the unusual feature of a rivet-hole in place of a loop for secure hafting; another contained a portion of the original wood shaft. Some of the axes are in the rough state, as if just turned out of the mould; others have obviously been in use. The collection evidently formed the stock-in-trade of a metal-worker of the Bronze Age, at least a thousand years before the birth of Christ. Mr. T. Sheppard, M.Sc., who has made a special study of the relics of this period, is figuring and describing the specimens, which have found a permanent home in the museum at Hull.

The Local Government, Records, and Museums Committee of the London County Council make some interesting announcements respecting the Geffrye Museum. They have added to the exhibits at the Geffrye Museum a carved pine "Adams" door, with pilasters and fanlights (lent by the Hon. Vavasseur Fisher), and a number of articles, chiefly Japanese and Chinese pictures and porcelain, which have been transferred from the Horniman Museum. The storage room at the Council's School of Building, Brixton, occupied by the map of the model of the city of Tokio, being required, the Committee have arranged for the map to be moved to the Geffrye Museum.

ILLUSTRATIONS.

"THE QUINTA," ALDERLEY EDGE, CHESHIRE.

THE above house was built in 1898, and our illustration shows a new music room recently added to it; the room is about 30 feet long by 24 feet wide, with an organ recess 14 feet by 9 feet at the westerly end. The internal woodwork is of oak, and the floor is laid with oak parquetry; the roof is covered with Yorkshire grey flags. The flags for the music room were obtained from some old cottages recently demolished, the external effect having the appearance of being part of the original building. The work was executed by Messrs. J. K. Coates & Sons, builders, of Wilmslow, Cheshire. The architect for the house and additions was Frank W. Mee, F.R.I.B.A.

CHRIST'S HOSPITAL.—LONDON OFFICES, 27 GREAT TOWER STREET, E.C.

THIS building stands at the corner of Great Tower Street and Water Lane. The design was intended to be reminiscent of the old Gateway in Newgate Street, which was pulled down to make way for the new General Post Office buildings. It is built of 2-inch bricks, the entrance door, cornice, and copings being of Portland stone.

The interior is treated with oak panelling, which is continued up the oak staircase to the first floor, and through the court room, which extends to the full width of the building.

The building was commenced in the late summer of 1913, and the work was delayed by the Building Trades strikes at the beginning of 1914, and restarted after the war began. It was completed and opened for use in 1915.

On the ground floor are the general office, the receiver's and the clerk's rooms; on the first the court room, committee room, and treasurer; on the second the resident caretaker; and the third or top floor is occupied by examination rooms for the scholars.

There is ample accommodation in the basement for lavatories, strong rooms, store rooms, &c., and further store room in the sub-basement.

There is a service stair at the back, with an electric lift, and the building is furnished with a vacuum-cleaning plant.

The designs of the architect, Mr. Arthur Blomfield, M.A., F.R.I.B.A., were carried out by Messrs. Howell J. Williams, Ltd., of Bermondsey Street, the contractors.

DOUAI.

By JOHN A. RANDOLPH.

DOUAI, towards which our troops are working strenuously, was, previous to this war, fortified, but the old-time defences are demolished, being turned into the usual boulevards. Two old gates of the fortifications remain—the Valenciennes, of 1453, and the Arras.

The town most probably dates from the Gallo-Roman period, growing up round the camp and fort.

It has been besieged and captured several times, but successfully resisted being taken, in 1479, by Louis XI. The Spaniards took it in 1529, and in 1667 Louis XIV. did likewise. The French were expelled by the Duke of Marlborough in 1710, but returned two years later, the Treaty of Utrecht of 1713 confirming the town to them.

A Catholic University was founded here in 1652, but had a short, though brilliant, existence. The Benedictine Abbey was first established in Paris as a Royal Priory in 1611, as a continuation of their abbey at Bury St. Edmunds. After the Revolution it was revived at Douai in 1818, Pope Leo XIII. creating it an abbey in 1899.

By the French Law of Religious Associations it was suppressed in 1903, and the monks and their students came to England.

The Old Testament translation was made at Douai in 1610, and together with that of the New Testament made in 1582 at Rheims, is known as the Douai Bible.

The church of St. Pierre, rebuilt in the eighteenth century, except for its huge tower (sixteenth century), which takes up the whole width of the façade, contains alabaster reliefs from St. Amand Abbey, near Valenciennes, and an organ case of 1760 from Anchin Abbey.

Notre Dame, partly twelfth and sixteenth centuries, has an altarpiece from Anchin Abbey of 1520, and pictures by Van Dyck, and St. Jacques' possesses one representing a miracle which occurred at Douai in 1254.

The chapel of St. Catherine en Chatel dates from the thirteenth and sixteenth centuries.

There are many houses in the town of the sixteenth to eighteenth centuries, one of which, in the street opposite St. Jacques', formerly belonged to an abbey, and is now the Palais de Justice.

The "Hotel Académique" dates from 1628, and the Hotel Dieu was begun in the previous year.

The Museum has many old MSS. and paintings by, among others, Van Dyck, Rubens, Philippe de Champagne, and others of more local repute.

The Hotel de Ville, of which we give an illustration, is partly of the fifteenth century. Its belfry is 130 feet

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HOTEL DE VILLE, DOUAI.

high, and is crowned by a spire surmounted by a banner bearing the Flemish Lion. The chapel attached to the Hotel de Ville is a refined example of Gothic of the time of François I. (temp. Henry VIII.). The inevitable carillon is in the uppermost opening of the spire.

There is a striking resemblance between the belfries of Douai, Béthune, and Bergues (near Dunkirk), and, to a certain extent (till damaged so seriously by the invaders), Termonde, which, however, was on a smaller scale.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

The Report of the Council for the official year 1916-17 states (inter alia) that since the issue of the last annual report the Council have made the following grants:—Architectural Association, £100; Architects' Benevolent Society, £100; A. A. Active Service Committee, £21; London Society (towards expenses of Charing Cross Bridge Bill Petition), £10 10*s.*; British School at Rome, £3 3*s.*

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In addition to the grant to the Architectural Association, the Council have been enabled to obtain for that body a further sum of £200 from the Jarvis Trustees.

The Royal Gold Medal was awarded to Sir R. Rowand Anderson, LL.D., F.R.S.E. (F.). Sir Robert was, unfortunately, not well enough to be present in person at the Presentation Meeting, and the Medal was received on his behalf by Sir Robert Inches, Lord Provost of Edinburgh. It has been decided to award the Medal this year to the distinguished French architect, M. Henri Paul Nénot, Membre de l'Institut, architect of the New Sorbonne, Paris (Hon. Corr. M.), in recognition of the merit of his executed work. His Majesty has graciously signified his approval of the award, and the presentation will be made to M. Nénot at the General Meeting on June 25.

The work of the Royal Institute continues to be seriously affected by the war. The programme of Sessional Papers remains suspended, only business of a routine and uncontroversial nature has been transacted at the General Meetings, and the Prize Competitions for the year have again been postponed.

Members who have joined the Forces since the outbreak of war now number 72 Fellows, 513 Associates, 312 Licentiates, and 293 Students.

Altogether, the Institute has lost in the war 1 Hon. Fellow, 1 Hon. Associate, 4 Fellows, 38 Associates, 9 Licentiates, and 23 Students.

Since the last Annual Meeting the Secretary and the Chief Clerk have been called up for the Army. The Council are extending to them the consideration that has been accorded to other members of the staff, and are supplementing their military pay in order that they may suffer no diminution of income whilst on service.

In a letter to Mr. Lloyd George when War Minister the President drew attention to the fact that many highly-trained young architects were being wasted in the ranks of ordinary line regiments, and suggested that they should be appointed to Cadet Corps with a view to being granted commissions in the Royal Engineers. Numerous architects have since obtained commissions in this way.

As a result of a personal protest to the War Office against the claims of architects being ignored for such appointments as supervisors of buildings for Army purposes in France, the President was asked to nominate five architects for such posts. This was done, and it is understood that their work has been highly satisfactory. The President is endeavouring, in conjunction with the Surveyors' Institution, to get substantive rank for professional men employed in this and similar work, and the War Office has the matter under consideration.

Application having been made to the Institute by the War Office for men able to speak French to arrange for billeting in connection with the British Forces in France, the requirement was made known, and architects found capable of filling the position were appointed.

The President has been in communication with the War Office with the object of securing architects appointments in connection with billeting troops in England, and it is understood that architects qualified for this kind of work will be appointed as occasions offer.

In connection with the Order in Council made last July imposing restrictions upon private building, the President has accepted an honorary position at the Ministry of Munitions for the purpose of carrying out a system of inspection to ensure that buildings in course of erection are not stopped without regard for their protection and security. The staff of inspectors is composed of architects accustomed to deal with buildings of every kind, and care is taken to administer the Order with scrupulous fairness.

Endeavour had been made by the President to secure the appointment of architects as inspectors of labour at munition factories in course of erection. He has also been instrumental in securing for owners of Controlled Establishment Canteens the right of employing their own architects for the preparation of plans.

The Institute has supported during the year the various organisations which it was instrumental in promoting, and on which it is represented, with the object of assisting architects whose practices have come to a standstill in consequence of the war. This has been effected either by finding them positions in Government and other offices, or by granting them financial aid. The hospitality of the Institute Galleries has been afforded to the Civic Survey of Greater London, where work has been in progress since the beginning of the scheme, now nearly two years ago. This has provided employment for eighty architects, and for sixty of these better positions have been found in Government Departments and elsewhere. The Civic Surveys of South Lancashire and South Yorkshire have also fulfilled the same purpose as that of London, and have found employment for some thirty-five architects. Acting in conjunction with the Architects' War Committee and its Sub-Committee, the Professional Employment Committee, a large number of other positions have been found for architects with private firms as well as in the following Government Departments: The Board of Trade, Board of Inland Revenue, Inland Revenue Land Valuation Department, Office of Works, Ministry of Munitions (Enfield Lock Powder Factory, Department of Explosives, Central Clearing House, Trench Warfare Supply Department, &c.), Admiralty (London and Sheerness), Aeronautics, War Office (Woolwich Arsenal, C.R.E. Office, Aldershot, &c.), Central Control (Liquor Traffic) Board. The expense of carrying out the work of the various Committees has been largely borne by the Institute. A brief account of the activities of the War Committee since its inception in August 1914 will be found in the Committee's Report to the Council.

Representations have been made to the Reconstruction Committee as to the desirability of passing plans for asylums and other buildings during the present period of slackness in architectural work in order that the plans may be prepared at once in readiness for use at the restoration of peace. The Reconstruction Committee are in communication with the Board of Control on the subject, and favourable consideration is anticipated.

A deputation arranged by the R.I.B.A. and the Architects' War Committee, and consisting of representatives of the R.I.B.A. and its Allied Societies, the Architectural Association, the Society of Architects, and unattached architects, waited upon Mr. Neville Chamberlain, Director-General of National Service, to urge in connection with the National Service scheme the utilisation of architects by the State for the special services for which their training has fitted them. The deputation was very sympathetically received, and Mr. Chamberlain approved a proposal put before him that the profession should appoint a committee to confer with him from time to time and suggest the kind of work that architects were qualified to undertake. An Advisory Council representative of the whole profession was at once formed, and an appeal has been published urging architects to sign the National Service form and send it to the R.I.B.A. or to the Allied Society of their district, in order that the forms may be all sent in together as a united offer from the whole profession. The Advisory Council has also in preparation a list of the services in which architects are likely to be useful, which is to be sent to Mr. Chamberlain with a suggestion that his Department should indicate the nature of the vacancies it is desired to fill.

The Council, adopting a suggestion made by Professor Lethaby at the opening meeting of the Session, organised a series of informal conferences at the Institute on matters not only of architectural, but of general public interest. Six meetings have been held, and two more are arranged for. The subjects discussed include "Architecture and Civilisation" (January 24 and April 18), "Education of the Architect" (February 7 and 21, and a further meeting to be held on May 2), "The Control of Street Architecture" (March 7), and "New Materials and Methods as influencing Design" (March 21). Another Conference will be held on May 16, when the subject of "Co-operation in Design" will be considered.

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Valuable and very comprehensive contributions have been made to the discussions, and will be published in the "Journal" as space permits. The conferences have served a most useful purpose, and it is intended that they shall bear fruit. The views expressed will be duly considered by the Committees dealing with the subjects discussed, and good, practical results may be anticipated when conditions again become normal.

The Conditions of Contract Revision Committee, who have held thirty-eight meetings, have had under review a large number of documents and legal decisions relating to the subject referred to them, and considerable progress has been made with the work of revision. The Committee hope shortly to be in a position to present a report to the Council.

The Privy Council Committee for Industrial and Scientific Research having invited the Institute to send representatives to meet Sir William McCormick and other members of the Government Committee, a Sub-Committee of the Science Standing Committee met the Government Committee, and suggested a number of subjects suitable for research in connection with building materials. The scope of the Institute representatives' relations with the Government Committee has since been largely extended and promises to have substantial results, as will be seen from the Report dealing with this matter which follows. The Sub-Committee, with other members added, have now been given the powers of a full Committee to act as they deem expedient in their negotiations with the Government Committee.

The Council have given their support to a Memorandum drawn up by the British Science Guild for presentation to the Government, urging that the State should take immediate measures to promote the more general and effective teaching of Science in Public Schools and other Secondary Schools in preparation for more advanced teaching in the Universities and Technical Colleges, and to co-ordinate the work of the science laboratories of such institutions with the activities of progressive industry and commerce.

The Cabinet Committee on Afforestation invited the Institute to give evidence as to the best kinds of trees to plant to produce suitable timber for building purposes. Messrs. Searles-Wood, Vernon Crompton, and Digby Solomon were appointed for the purpose, and at the Cabinet Committee's request have drawn up and submitted to them a report upon the subject.

The Art Standing Committee having submitted to the Council in June 1915 a report containing various suggestions for the amendment of the London Building Acts, the Council referred the Report to the Practice and Science Standing Committees for their comments, and on the recommendation of the former a Special Committee has now been appointed to deal with the whole question in order to be ready to meet any proposals that the London County Council may bring forward when further amendment of the Acts is under consideration.

The Government of the Commonwealth of Australia having decided upon the resuscitation of the Competition for the Federal Parliament House at Canberra, which had been postponed at the outbreak of war, the Council, on the appeal of the Royal Victorian Institute of Architects, and supported by the principal French architectural societies, strongly protested to the Commonwealth Government against the competition being proceeded with at the present time, pointing out that all the architects of Great Britain and the Allied nations who were of military age, and large numbers also of the architects of the Overseas Dominions, were serving with the Forces and unable to compete—hence the competition would be practically confined to neutral countries and would be in no sense international as originally intended. The Commonwealth Government declined at first to postpone the competition, but a further remonstrance was made by the Council through the High Commissioner in London, and eventually a cablegram was received stating that it had been indefinitely postponed.

A complaint reached the Institute that in the competition for the New Departmental and Courts Buildings at Ottawa the Dominion Government were not fulfilling the obligations to competitors as set out in the General Conditions for Competition Designs, the terms of which had been considered and approved by the Institute. The Council in consultation with the Competitions Committee addressed a letter of protest to the Deputy Minister of Public Works, Ottawa. The Minister, in reply, made concessions which the Council consider will afford a satisfactory temporary settlement, and it is hoped that other proposals made by the Council in the interests of fairness to the competitors will be adopted by the Dominion Government and be carried into effect when the final stages of the competition are proceeded with after the war.

In the Session of 1916, the Institute, in conjunction with the London Society, successfully petitioned Parliament against the South-Eastern Railway Company's Bill, the passing of which would have the effect of retaining the unsightly railway bridge at Charing Cross and of deferring indefinitely the proposal for the much-needed road-bridge across the river at this point. The Bill is again before the present Session of Parliament, and the Institute and the London Society have again petitioned against it. The Bill, however, has passed the second reading and has been referred to a Committee of the House of Commons. It is intended to keep the Joint Committee of the Institute and the London Society in being with a view to their keeping in touch with the subject and taking such action as may be deemed expedient in case of further developments.

Owing to the depleted staff, the increased printing charges, and the shortage and great advance in the price of paper, the Council have been compelled to stop the fortnightly issue and bring out the "Journal" monthly. As a further measure of economy the Kalendar has been suspended, its place being taken by a small pamphlet giving the fixtures of the session, lists of new members, changes of address, &c.

REPORT OF THE BOARD OF ARCHITECTURAL EDUCATION.

The Board have held eight meetings since the issue of the last Annual Report, and the members appointed by the Council in 1915 have since constituted the Board, no election having taken place in 1916. Mr. John Slater presided at the meetings until October last when a serious breakdown in health compelled him to relinquish his duties. The Board desire to place on record their appreciation of his great services and their sincere regret that ill-health has compelled him to sever his connection with the Board, of which he has been a member since its foundation.

Committees.—The Testimonials of Study, Examinations and Exemptions Committees have met and reported from time to time.

Problems in Design.—During the year thirty-six designs have been received and adjudicated on, and of these twenty-four have been approved.

The Examinations.—The Board has conducted the Intermediate, Final and Special Examinations as usual, and the results as reported to the Council have been published.

Examinations in India.—The Council have approved a recommendation of the Board to hold the Final and Special Examination in Bombay, provided that satisfactory arrangements can be made.

Government. Reconstruction Committee.—A letter from this Committee appointed by the Prime Minister asking for certain information wth regard to architectural students who had joined the Army was considered by the Board. Information on the subject has been obtained from all the recognised Schools of Architecture, and a tabulated statement, containing the information asked for was sent to the Reconstruction Committee.

Architectural Education in Wales.—The question of providing facilities for architectural education in connection with the Welsh University is engaging the attention of public men in Wales in view of the fact that a Royal

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Commission has been appointed in connection with the Welsh University. It is proposed to get together data on the subject, and the Board has promised to assist in this object, provided that a request is made to them to that effect by the Welsh University.

Public Schools Science Masters' Association.—Mr. Walter Cave, as a representative of the Board, and Mr. Alan E. Munby, as a representative of the Examiners, were appointed to attend a meeting of the Public Schools Science Masters' Association with the object of bringing the Board into touch with that Body, and in order to make the nature of Architectural Education more widely known in Public Schools.

Entrance Examinations to Professions.—In view of the great variety of examinations and certificates qualifying for entrance to the Universities and Professions, the Teachers' Registration Council invited members of various governing bodies to take part in a conference to consider if these demands could be simplified. The Council nominated Prof. Adshead and Mr. H. V. Lanchester to attend, and they have reported that the Conference decided to form a permanent council of twenty elected as follows:—

Five Members by a Standing Committee representing the Universities.

Five Members by a Standing Committee representing the Professions.

Five Members by a Standing Committee representing the Teachers' Registration Council.

Five Members by a Standing Committee representing School Administrators.

The Board of Architectural Education resolved that the R.I.B.A. representatives should continue to act as members of the Professional Standing Committee.

(To be continued.)

ARCHITECTURAL ASSOCIATION OF IRELAND.

THE annual general meeting of the Architectural Association of Ireland took place on the 26th ult. The outgoing president, Mr. H. G. Leask, and the incoming president, Mr. Edwin Bradbury, were successively in the chair.

Mr. Leask first announced that the officers and committee for the session 1917-18 had been chosen by ballot as follows:—President, Edwin Bradbury; vice-president, Louis F. Giron; committee, H. Allberry, G. F. Beckett, A. E. Jones, W. S. Keatinge, H. G. Leask, H. J. Lundy, G. G. Lynes, B. O'Callaghan, and L. O'Callaghan; hon. treasurer, W. G. Clayton; hon. librarian, T. L. Cullimore; hon. secretaries, W. A. Dixon and W. H. O'Donell; hon. auditors, J. H. Webb and F. G. Hicks.

Mr. Bradbury proposed that the Association should adopt the report and statement of accounts. He said that the members must all agree that, considering the conditions of the last two or three years, the Association had done well. He thought that this was owing to the work of the president and the other responsible officers. The attendance at the classes had not been very good; the sparsity was accounted for by the fact that one-fifth of the Association's members were actually on active service. This was a record of which the Association might well be proud.

Mr. Holloway seconded Mr. Bradbury, and the Association adopted the report and statement of accounts.

After a distribution of prizes, Mr. Bradbury was moved to the chair.

Mr. Beckett then proposed that the Association should thank Mr. Leask for his presidency. He thought it was time Mr. Leask had a rest, as he had nobly served the Association during the past two years. The members were delighted that, although Mr. Leask had been in a Government office for quite a number of years, he had an unabated interest in his profession.

Mr. Lyons seconded Mr. Beckett. He thought that Mr. Leask had done more than any other president of the Association.

Mr. Leask acknowledged the vote. He proposed that the Association should thank the retiring officers, and he was seconded therein by Mr. Keatinge.

Mr. Giron, acknowledging the Association's thanks, referred to an address which had been presented to him on the previous day.

NOTTINGHAM AND DERBY ARCHITECTURAL SOCIETY.

THE President, Mr. Harry Gill, M.S.A., took the chair at the fifty-fourth annual meeting on Tuesday, April 24.

The Council reported that one new Member had been elected and that two Members and one Associate had resigned. They recorded with sorrow the loss by death of three Past-Presidents, Messrs. W. A. Heazell, G. T. Hine, and W. D. Pratt; one Honorary Member, Mr. A. G. Webster; and one Associate, Captain N. H. Pratt, 10th Battalion Sherwood Foresters, who fell in action.

The total membership is now 110—viz., 6 Honorary Members, 60 Members, and 44 Associates, a decrease of 5 as compared with last year.

The Master Builders have requested the Council to agree to an alteration in the Conditions of Contract, so that payments on account may be made at the rate of 90 per cent. instead of 80 per cent., and in addition a payment of 5 per cent. interest upon retention money. After careful consideration the Council decided to refer the matter to the Practice Committee of the R.I.B.A., who suggested that the present custom of payments on account should be adhered to.

The President of the Master Builders has since had an interview with the President of this Society, when it was mutually agreed that in consequence of the conditions of trade now prevailing, architects might certify to pay 90 per cent. on works in progress during the continuance of the war, this to be without prejudice to after-war conditions.

The Council have kept up a regular correspondence with the Architects' War Committee, and supported a deputation from the R.I.B.A. and the allied societies to Mr. Neville Chamberlain to request that the services of architects over military age should be utilised in the national service wherever their professional training and experience would be of value to the State.

The Council gave a donation of three guineas to the Architects' Benevolent Society.

The Society again sent to the members serving their King and country a suitable greeting last Christmas.

The members of the profession were still suffering through the necessary restriction of private building.

As such a large proportion of the members were on active service and the majority of those over age were doing various kinds of war work only one winter meeting has been held.

No subscriptions had been collected from members serving the Colours, but notwithstanding the falling off in income the Council were able to show a satisfactory balance in hand.

The Hon. Librarian, Mr. Spencer, announced that several members had again very generously given books to the library, and a number of drawings, water colours, and paintings had been given to the Society by the members.

A motion "that the rules as to election of officers be suspended and the present officers continue until April 1918" was unanimously agreed to.

NORTHERN ARCHITECTURAL ASSOCIATION.

THE Annual Report of the Council for the fifty-eighth session states that the Members' Roll is now as follows, and the figures for the session 1915 are given for comparison:—

	1915.	1916.
Members	81	73
Associates	79	73
Students	32	30
	192	176

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No elections have taken place during the session, and the decline in membership is due to the fact that four members, four associates, and two students have died, two members have resigned, and two members and two associates have been removed from the roll of members through the operation of rule 19. The Council regret to record the deaths of the following members during the past session.

Mr. J. W. Dyson died on October 24, 1916. He was elected a member of the Association in 1899. Mr. Edward Cratney died on December 1, 1916. He joined the Association as a student in 1898, and was elected a member in 1911. Mr. Archibald M. Dunn died on January 17, 1917. He was one of the founders of the Association in 1858, and filled the office of President in 1896. He remained a member for upwards of fifty-eight years, and at all times took a great interest in the welfare of the Association. Mr. H. G. Badenoch died on February 15, 1917. He joined the Association in 1887, and was elected a member in 1897. Mr. C. W. Bell died on November 30, 1916. He joined the Association as an associate in 1905. Mr. H. D. Hodgkinson died on January 5, 1916. He joined the Association as a student in 1904, and was elected an associate in 1906. Mr. T. Scott died on March 6, 1917. He joined the Association as student in 1907.

The Council also regret to record that the following members have been killed on active service during the past session: Capt. J. B. Cubey, killed on July 1, 1916. He received his commission in 1914, and joined the Northumberland Fusiliers, subsequently attaining the rank of Captain. He joined the Association as student in 1902, and was elected an associate in 1906. He acted as assistant Hon. Sec. of the Association during the years 1906-12.

Capt. P. G. Graham, killed on July 1, 1916. He joined the ranks soon after the outbreak of the war, and was afterwards gazetted Second Lieutenant, and was eventually promoted to the rank of Captain. He joined the Association as student in 1907, and was elected an associate in 1914.

Mr. Irving Henderson, killed on July 1, 1916. He joined the ranks of the 16th Northumberland Fusiliers. He was elected a student of the Association in 1907. The Council also regret to record the death of Mr. E. R. Robson, of Westminster, on January 19, 1917, who (like Mr. Archibald Dunn) was one of the founders of the Association, but he relinquished his membership on leaving the district shortly afterwards. By the death of these two gentlemen an important link with the past has been broken. In each case letters of sympathy have been forwarded to the relatives by your Council.

The Council have offered their congratulations to Major J. W. Douglas, R.E., Member, on his receiving the Distinguished Service Order and the Serbian Order of the White Eagle, to Staff Capt. D. Hill on his promotion to the rank of Brigade Major, and to Capt. R. Mauchlen and Lieut. W. N. J. Moscrop on their receiving the Military Cross.

The Council have expressed their sympathy with Messrs. F. N. Weightman, S. Wilson, W. J. Smith and A. W. Wilkinson who have been wounded.

Sixty-eight members of the Association have gone on active service, five of whom have been killed.

With reference to the Glover Bequest, and the appointment of new trustees, Mr. E. G. Harvey attended a Council Meeting, and explained that it was necessary to have trustees of the Association in addition to trustees of the Glover Bequest; the former trustees would be appointed by an alteration of the rules, and the latter by means of a new deed. A special General Meeting was held on November 15, 1916, and the following resolution was passed:—"That the existing rules of the Association be varied, by adding thereto new rules in the form of those set out below, and that the existing rule numbered thirty be altered, by omitting therefrom the following words, namely, 'and to fill up vacancies in the trustees or appoint new trustees under Glover Trust Deed, dated October 7, 1903.'"

The new rules referred to in the resolution are as follows:—

37. There shall be five trustees of the Association, all of whom shall be Members thereof, and Arthur Benjamin Plummer, Charles Septimus Errington, George Thomas Brown, Robert Burns Dick, and Henry Leicester Hicks shall be the first of such trustees and whenever by death, resignation, removal, ceasing to be a Member of the Association, unfitness to act, or otherwise, there shall be a vacancy in the office of trustee the vacancy shall be filled up at the next Annual General Meeting, or at a Special General Meeting of the Association, of which seven days' notice specifying the object of such Meeting shall be given. The surviving or continuing trustees shall have power to act notwithstanding any vacancy.

38. The freehold property No. 6 Higham Place, Newcastle-upon-Tyne, and all other the real and personal property for the time being of the Association shall be vested in the trustees or trustee for the time being of the Association, upon trust for the Members of the Association according to the rules thereof.

39. The trustees or trustee for the time being of the Association shall deal with the property of the Association by sale, lease, mortgage or otherwise as directed by resolution of the Council (of which an entry in the Minute Book shall be conclusive evidence), and they shall be indemnified against risk and expense out of the Association property. Subject as aforesaid the trustees or trustee for the time being of the Association shall have power to invest money and adopt such measures as may appear to them necessary in the interests of the Association.

Mr. E. G. Harvey has now prepared the new deed appointing the new trustees, and a deed of conveyance to the new trustees of No. 6 Higham Place. The former deed has been signed by Mr. A. B. Plummer as surviving trustee, and Mr. R. Burns Dick and Mr. H. L. Hicks as ex-officio trustees of the original deed, and the latter deed has been signed by Mr. A. B. Plummer as surviving trustee, and Mr. R. Burns Dick and Mr. H. L. Hicks as ex-officio trustees of the original deed, and the latter deed has been signed by Mr. A. B. Plummer as surviving trustee of the original deed of conveyance.

At the first Ordinary Meeting of the session, November 15, 1916, Captain R. Burns Dick delivered an address, for which he was cordially thanked. The address has been printed and issued to members.

Owing to the war and the absence of so many members, no outdoor meetings were held, and the usual lectures at winter meetings were abandoned. Acting on the recommendations of the Finance Committee, the Council has purchased £500 worth of 5 per cent. War Loan Stock with Glover Bequest money, £350 worth of which was from capital previously on deposit at the Bank, and £150 worth from income derived from investments. The Council have again granted permission to the Armstrong College to use the rooms of the Association for the purpose of holding art classes during the war.

The Council are offering no prizes to students during the ensuing session. The Students' Sketching Club and Classes Club are in abeyance at the present time. The receipt of various publications of the Royal Institute, the Architectural Association, and other kindred societies is gratefully acknowledged.

THE LONDON SOCIETY.

At a meeting of the London Society, held in the hall of the Royal Society of Arts, John Street, Adelphi, W.C., on Friday, April 27, Mr. Paul Waterhouse, F.R.I.B.A., delivered a lecture entitled "London after the War," illustrated by lantern slides.

The Chairman (Lord Burnham) in his opening remarks observed that they all knew Mr. Waterhouse not only by reputation, but of the great artistic and literary connection from which he came. They knew he was the son of the late Mr. Alfred Waterhouse, the well-known architect and Royal Academician, and they knew he was an

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architect of high repute, one of the most active members of the London Society, chairman of a committee which dealt with the south side of the river, and that he had written several illuminating papers about London. Lord Burnham added that he had the advantage of being both at school and college with Mr. Paul Waterhouse, and therefore it was a particular pleasure to him to take the chair for him on that occasion.

Mr. Waterhouse remarked at the outset that the subject of London's future was a ridiculously large subject to compress into a single lecture, and he did not intend so to compress it. He should not pretend to be exhaustive or even systematic. It would be pleasanter for them and for him if they devoted the time to a few informal thoughts upon some aspects of the responsibility of Londoners and their opportunities. They had a great tendency, which was not wholly laziness, to leave things alone because they were on the map. Natural features and man-made features looked much the same in the ordnance survey. Simple souls looked upon a country road as a mere baldness of the earth's crust—a convenient longitudinal absence of vegetation. The road thus ranked, like stream and hill, as a map-fact, and if it travelled up into the town it still remained, like the hillock and the stream, a map-fact, a nature-mark, even though for purposes of traffic it was topped with pavement, just as its friend the hill was crowned with houses, and its friend the river lined with wharves and embankments. Here then was a human tendency which made for changelessness in towns. Whatever is, is. And there was another: the absolute love which the inhabitants bore to their town—a love so intimate, so private, and so delightfully unreasoning—that any change, however small, was condemned as uprooting some association, disturbing some tradition, or at least altering the personality of that impersonal and strange agglomeration of masonries and memories which they called their own town. He had the greatest sympathy with those unreasonable people because he was one of them. Ask him what to do with London, and he would answer from the heart but not from the head, "leave it absolutely alone." But he knew, and they knew, that London very absolutely and definitely could not be left alone. Why not? First, because London grew. Secondly, because London's day population also grew in a degree out of all proportion to the growth of the material town. Thirdly, because London decayed like other towns, and consequently needed the constant replacement of old or unsuitable buildings by new and suitable ones. And, lastly, because the general growth of scientific aids to life and locomotion so altered the conditions of existence that whether they liked these innovations or not they came, and they affected London in ways which made it necessary for her guardians to see that she kept her health and beauty under the new rules of life. Proceeding to discuss the road problem, Mr. Waterhouse said he put it first because it was the problem whose claims called the loudest, and whose remedies were most likely to receive sympathetic, official, and practical attention. Some while ago their great and only idea was widening. Do not let them attach too much importance to that. Widening was not always a cure. If a road were troubled with overcrowding its state might be due not merely to its own inadequate capacity, but to the fact that it was conveying traffic to a congested destination. In that case the more they encouraged traffic to frequent the road, so much the more would they increase the trouble. If the mischief was what they graphically called a "bottle-neck" trouble, no increase in the capacity of the bottle would help matters. In fact, widening was a remedy which was not always worth its cost. Next let them remember that the concentration of roads at centres was not, as our forefathers thought, a good thing, but a very bad one indeed. The Elephant, St. George's Circus, the nameless conflict of traffic at the south end of Tottenham Court Road, the north end of Kingsway, Oxford Circus, Piccadilly Circus, the Marble Arch, and Hyde Park Corner were all from the traffic point of view horrible failures. The ordinary cross-road, namely, one road crossing another approximately at right angles, was of itself bad enough, and could become quite a costly and unbearable nuisance.

To increase this terror by inviting other roads to join in the fun was iniquitous. It would be well if all really important crossings could be made on the over-and-under principle, but when that was not possible the evil should be mitigated as much as practicable. Going on to discuss the railway problem of London—by which he meant chiefly the main line services—Mr. Waterhouse said a great many people thought it would be facilitated by concentration. He knew that in this matter he did not enjoy the agreement of friends whose wisdom was indisputable. He was all against the suggestion of a combined central station uniting all terminal lines. He objected also, though not so strongly, to the notion of two combination stations, one on the south of London and the other north of the Thames; and he was willing to go the length of saying that he considered the space occupied by Charing Cross, Cannon Street, and Holborn Viaduct Stations would be more conveniently devoted to other than railway purposes. When a town was as large as London concentration was entirely a mistake. He thought the best way would be for all the railways to set down their passengers on the edge of a circle, and hence distribute them by means of underground railways. Supposing a central station was established at or near Covent Garden, they would discover that they had placed this great glory of the future in a spot where it would suit nobody except the ground landlord. Speaking of the inevitable needs of the Surrey shore, Mr. Waterhouse said he should rather particularly like to leave the Surrey shore as it is, but he knew that it could not be so left. Till fairly recent days Southwark and Lambeth had been looked upon as almost undiscovered country. The Borough, of course, was old, and had its old associations, but among those associations had always been a tradition of almost foreign existence. Lambeth Palace was frankly rural, Guy's Hospital frankly out of town. A glance at an old map showed very clearly the slowness with which land was occupied except along the edges of the main road. The long continuance of London Bridge as the only bridge no doubt had much to do with this isolation; but it was the less understandable when they reflected that in the seventeenth, and, indeed, in the eighteenth century, the river was not—what it now is—a neglected waterway, devoted indeed to trade, but existing for persons other than water-traders merely as a bit of scenery or as a barrier. Truly much building had been done in the last hundred years on the Surrey shore; but it had nearly all been of a most squalid and dreary commercial kind, not without pretensions, but without any pretensions to comeliness. But now things were changing. It was gradually being realised that Southwark was physically and geographically very near both to the West End and to the East. It needed, he thought, the courage and thrift of the London County Council finally to convince Londoners that there was real solid or fairly solid negotiable land, on which a decent and expensive building could be erected, waiting conquest on the right bank. It was now certain that development would follow, and it rested with the lovers of London to see that the picturesque wharves of the Surrey shore gave place either to new wharves and docks, which could be at least as stately as those of Amsterdam, or, if that waterside commerce was definitely not wanted, to stately buildings worthy of their amazingly fine situation. Further, they should see that the road tangle of the Surrey side was improved, not made worse; that the south side embankment road, if there be one, was designed worthily and in proper relation to the adjoining roads and future sites; and that the bridge problem, including the inevitable death of Charing Cross Railway Bridge and the equally inevitable birth of a new road bridge, was properly handled. Finally, someone should be authoritatively entrusted with the proper, complete, and comprehensive scheming of the whole. If they

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started on patchwork they would inevitably pay for it in discomfort, ugliness, and hard cash. If we learnt nothing else in this war, we should have learnt courage. Let us be courageous. Speaking of the melancholy of London fringes, Mr. Waterhouse remarked that in almost all large towns there was at every stage of development a region on the outskirts, primarily along the main roadsides, and, secondly, in the wedge-shaped spaces between the radiation of the roads, a region where it was just worth while to build the cheapest possible house to catch the neediest possible payer of the lowest possible rent. This region was for a time the edge of the town, the limit. Meanwhile, people with a little more time and money to spend had settled further out in some then pleasant suburb. The pleasant suburb spread, both townwards and countrywards, and eventually the suburb of the rich and the outskirt of the poor met very much to the disadvantage of both. In time the outer edge of the suburb became a fringe, for the suburb had become a district of the town, and the original fringe lost hope, caste, and tenants, so that the landlord, losing rents, either let to a lower class of tenant, if discoverable, or turned the property to trade purposes. Two of the saddest sights in any town or around any town were the gradual shabbiness with which such towns merged into the country and the degradation of those above-mentioned tracts within the town which had once been almost tolerable outskirts. Why should not they get rid of those two forms of blemish? A mediæval walled town owed half its charm to the abrupt contact of country with its walls. The fields and the orchards surged round its masonry like waves against a rocky shore. With them that could not be he knew, because if a town was large and had a large population pure country could not have contact with pure town for the simple reason that the country became damaged by the contact, in fact, became impure. The mere friction of such a mass of humanity would wear the country away, but even with the limitations he believed that an incursion of green life somewhat freer than the formality of a park might very properly be attempted. They knew that circuit roads were desirable, and the only question debated between the advocates of such roads related to their position—what, in fact, should be the radius of their circle. His own view had been for some time that there should be a road round London, a road flanked by a tract of definite tree growth and country cultivation, which should choose as its course on the eastern side the open space provided by the still remaining marshes. Touching, in conclusion, on the disgrace of bad design, Mr. Waterhouse said they had got excellent control in London over all constructive problems and over all sanitary problems. An Englishman's house was his castle, but his drains did not belong to him, and the strength of his castle did not belong to him. The district surveyor would drop on him because his castle was not built strong enough, and the borough sanitary people would look after him because his drains were not quite according to rules. So it was no new thing for them to interfere with the private rights of owners. He suggested that it was very remiss on the part of the guardians of London not to see to it that architecture was always good. Fortunately, in the present epoch, architecture had, he thought, improved very much, and there was much less tendency nowadays to do careless and bad things than there used to be a generation ago. But he could not understand why, when they had got the custody of a thing so ancient, and on the whole, so beautiful as London, they did not compel themselves to see that there was a censorship of design. A great deal of bad design was either done by careless people or by ignorant people, or by young people who were not old enough to know any better. Such people should be set aside in favour of London. If they had a valuable piece of ancient embroidery they would not like it to be patched by the charwoman when it wanted mending. London was constantly being patched by the charwoman, and no one stepped in to exercise the natural right of saying that kind of thing must not be done. He for one should not be afraid to see London boldly tackle the problem of a censorship of design.

Mr. John Burns, M.P., said they were much indebted to Mr. Paul Waterhouse, especially during the last ten years, for his contribution to the improvement and beautification of London, and he deemed it his duty to come that afternoon and listen to an admirable lecture, which Mr. Waterhouse had delivered with lucidity, humour, imagination, and foresight. He entirely endorsed Mr. Waterhouse's views that it would be a mistake to have one huge central railway station for the whole of London. Given that they were to have such a monstrosity in London, Mr. Waterhouse would be probably right in allocating it somewhere in the neighbourhood of Covent Garden, but his (Mr. Burns's) view was that if such an abomination was erected there, anything between 200 and 300 acres of land and space would be necessary to meet the traffic requirements of the nine or ten railway companies that would necessarily go to the central station. It would make one of the most interesting parts of London unendurable, and the cost would be enormous; and he shuddered to think what would be the condition of the streets, from a traffic point of view, approaching to and radiating from such a station. If one had to choose between a central station and the admirable plan which Mr. Waterhouse threw on the screen of bringing the main lines into the outside of a circle and disposing of the suburban traffic as he suggested, by some other means, in his (Mr. Burns's) judgment) Mr. Waterhouse's plan would be an infinitely better remedy for the tangled problem of main mixed up with suburban traffic which was to an extent detrimental, in his view, to the satisfactory and convenient handling of either or both. He agreed with Mr. Waterhouse that there was much to be said for the circular road, and it was both his pleasure and duty to consider that both at the Board of Trade and at the Local Government Board. He believed that without a very great expense something like a circular road could be secured, and he believed the scheme suggested by Mr. Waterhouse would be a medium of rectifying some of the injustice that had been done to South-East London in the neglect of providing it with open spaces. The right hon. gentleman went on to say that the City of London, commercially and industrially, was altering its character, and the East of London was growing further eastward, and, above all, going west industrially and commercially. What the intelligent, public-spirited workman talked of as "the front parlour"—namely, the West End of London—was gradually becoming East-ended and industrialised to an extent that fifty, seventy, or eighty years hence we should not have a West End of London in the sense we had known it for the last 100 or 150 years, and it would be converted into the backyard of the East End of London. Mr. Burns added that he was in favour of a censorship of design, but said it was no good having such a censorship without power, which he would give to the County Council.

Sir Walter Essex, as an old Londoner and London lover, added his testimony to a number of points set forth by the lecturer, and the sentiment was cordially endorsed by the meeting.

The proceedings terminated with a vote of thanks to the Chairman, proposed by the Earl of Plymouth.

SECOND-LIEUTENANT ALEXANDER WINGATE, H.L.I., 61 Kersland Street, Hillhead, Glasgow, architect, killed in action, left personal estate amounting to £13,309.

AT the monthly meeting of the Newcastle Society of Antiquaries, held last week, Mr. J. C. Hodgson read a paper entitled "Two Chapters from the History of Coquetdale." The first chapter dealt with Cartington Castle, and the second with Harbottle Castle and their occupiers in the sixteenth and seventeenth centuries. Mr. Robert Blair read "Notes on the Manor of St. Helen's, Auckland, with extracts from the Manor Rolls," by Mr. William Brown.

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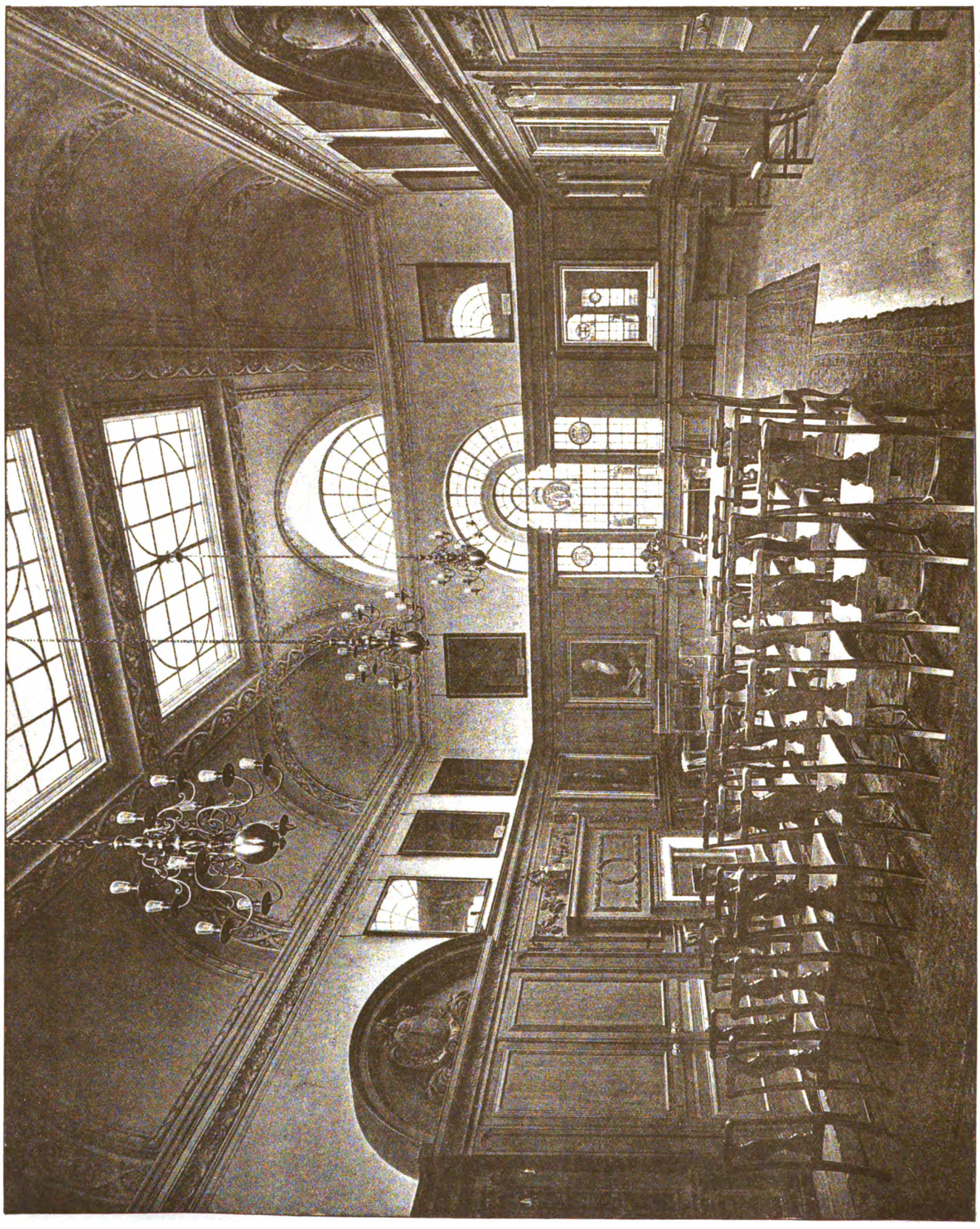
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DETAIL: DOORS IN COURT ROOM.

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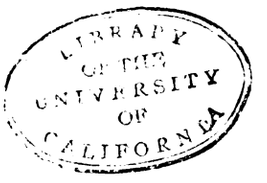
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GARDEN FRONT FROM S.E.

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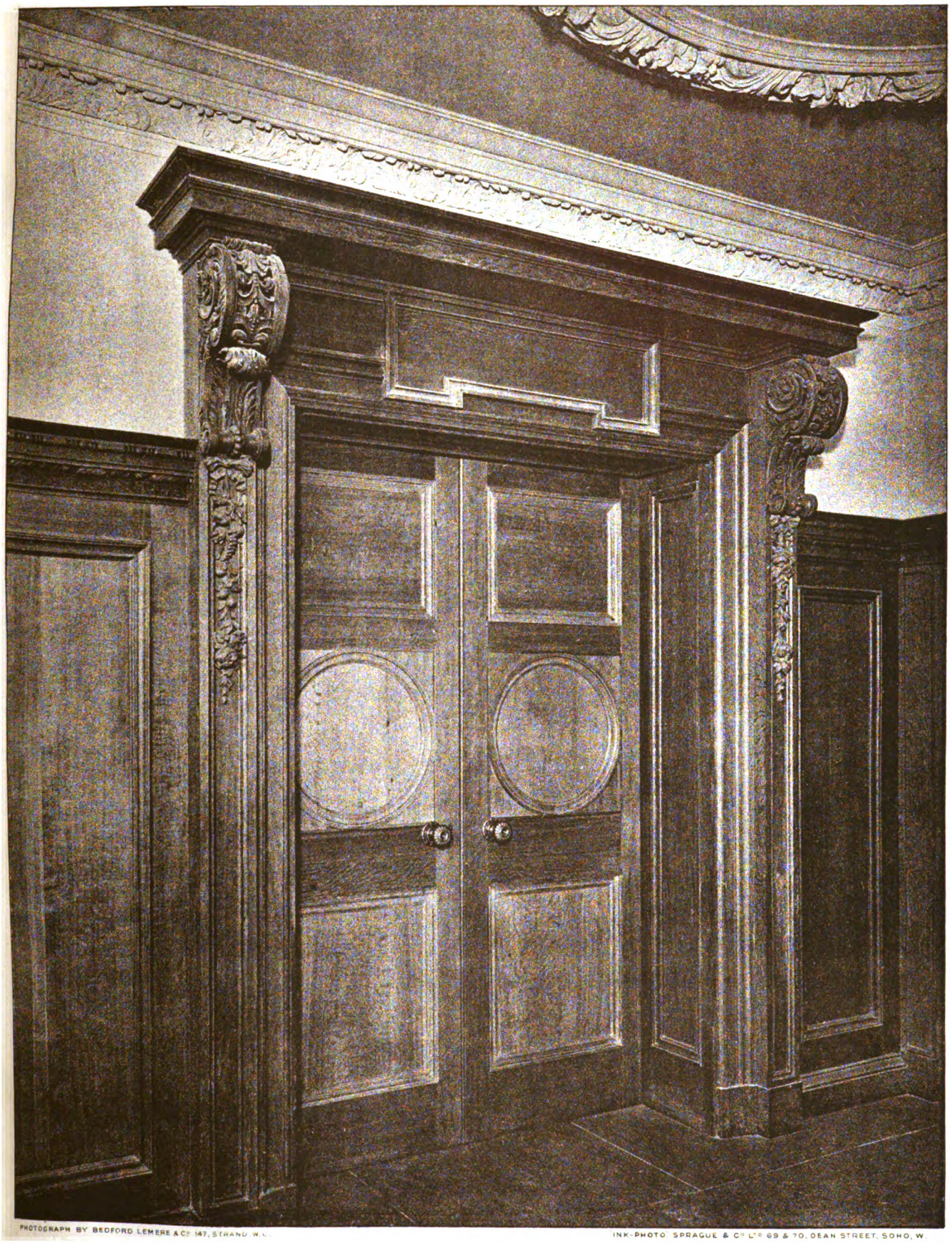
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DETAIL: ENTRANCE DOORS TO COURT ROOM.

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THE EFFECT OF WAR CONDITIONS UPON THE PROPERTY MARKET (URBAN).*

By J. G. HEAD, F.S.I.

(Continued from last week.)

UNDER the existing conditions, when a man borrows money to complete a purchase, he takes the whole of the income, pays interest on the loan, and retains the rest as an annual profit on his investment. My suggestion is that this process should be reversed; that where the lending association advances a larger proportion than is customary it should receive the whole of the income, pay the borrowing owner interest on the capital left by him, and retain the balance towards the reduction of the loan. By this means the lending association would recoup itself gradually until the loan became small enough to be transferred to a private lender by way of an ordinary mortgage. For example, take a case of normal times.

Assume that a buyer purchased property for £3,000, bringing in a rental of £150 per annum, and borrowed £2,000 at 4 per cent. The statement of affairs would be as under:—

	£
Rental income	150
Interest on loan	80
Profit income retained by the borrower	£70

Now if the lending association were to advance 80 per cent. of the whole, or £2,400, and to receive the income, the statement would be as under:—

	£
Rental income	150
Interest paid to borrower on his capital, £600 at 4 per cent.	24
	126
Interest on loan of £2,400, at 4 per cent.	96
Profit rental, applicable as a sinking fund to reduce the loan	£30

This repayment would reduce the interest payable and leave a larger amount available every year for the reduction of the loan, with the result, in this particular instance, that in eleven years' time the loan would be automatically reduced to £2,000, or the usual two-thirds proportion, when it could be readily transferred to a private lender.

In the example shown normal rates of interest have been employed. Under existing circumstances the rates of interest, both of income and of loan, would be greater. This, however, would not invalidate the principle indicated; indeed, the proportion repayable would probably be higher under existing conditions than that shown in the example set out above.

No allowance is made for expense of management, as the example given is one where the property is let on repairing lease, and involves only the quarterly collection of the rent. Under other circumstances the profit rental would naturally be higher, leaving room for a charge for management.

The advantages of the method suggested are:—It would meet the difficulty of money shortage; it would free the loan capital within a period much shorter than would be the case under the building society or instalment method; it would cultivate the highly important habit of thrift by making possible once more the purchase of a home; it would stimulate the building of houses by private enterprise, and, in so doing, it would go far towards solving the burning question of the peoples' housing, rescuing this most important of post-war problems from the doubtful and dangerous solution which is held to lie in the provision of housing by the municipality or by the State; finally, by its automatic action in securing regular payment of interest and replacement of capital, it would qualify the transactions of the property market for participation in the assistance of the trade bank or other similar institution.

But there is another thing which is quite as important to the welfare of the property market as is the proposed financial assistance, and that is the freeing of it from the fetters of hampering and paralysing legislation. I allude to the malign influence of the Finance Act, 1909-10. This enactment set out to impose taxation on various interests in land. It imposed three forms of tax—increment duty, by which it was intended to secure for the community a proportion of increment in value on the assumption that such increment was due principally to the action of the community; undeveloped land duty, which was aimed at those who withheld from development land which might be developed with profit to the community; and reversion duty, which provided that when, at the termination of a lease, the property came into the hands of the freeholder, he should pay a substantial proportion of the increased value to the Government. This tax as applied by the Inland Revenue Department is apparently based on what many of us regard as an unfounded assumption that the freeholder then comes into something in the nature of a bonus, or of some increment for which no consideration has been given by him.

It is not proposed, however, to discuss the appropriateness or otherwise of this taxation, but rather to point out its effect on the property market. Of course any taxation must reduce the capital value of the object taxed, but so long as the incidence of the tax is clearly defined, and its extent is capable of being estimated with accuracy, the loss in value can be readily calculated at so many years' purchase of the tax, and, after the first loss has been digested, the operations of the market should not suffer in consequence thereof. But in the case of the Finance Act, 1909-10, there are features present the effect of which goes much farther than the actual loss due to the taxation itself. In the first place the language of the Act is so ambiguous and confused that the bare meaning thereof has taxed the analytical powers of our most eminent judges. Then the circumstances under which it was passed, and the speeches of many of its adherents, supported the view that it was only the beginning of the campaign against land, and that it constituted a menace against that subtle but all important quality in an investment—its credit. By lessening the confidence of investors in its safety the Act has injured the property market as nothing else could have done. It is the apprehension of trouble (undefined and difficult to estimate) which is chiefly responsible for the pre-war reduction in the capital value of land and houses, and it is an aggravation of the charge that this condition of things has been brought about without any corresponding advantage to the State. Ordinarily the depreciation consequent on the imposition of a tax is counter-balanced by the benefit derived by the country from the taxes collected, just in proportion as the amount of the tax received exceeds the cost of collection. As, however, in this case the amount collected falls far short of the cost of collection, the Act derives no justification under this heading.

The combination of the uncertainty above referred to, and of the imposition of the actual tax, has, in addition to the above-named general effect, had the specific result of paralysing private enterprise in the production of houses for the accommodation of the working classes. The enormous proportion which this class of house bears to the general total of dwelling-houses, and the unparalleled shortage of such accommodation, shows how serious has been the effect of this enactment, and justifies the statement that the Act has in this respect been injurious to the country, while it has entirely missed its mark as a means of revenue production.

It has been suggested that amendment of the acknowledged defects of the Act would meet the case; but in view of the pressing emergency of war conditions, when it is essential that nothing should be done to hinder, but that everything possible should be done to foster the credit

* Paper read at the ordinary general meeting of the Surveyors' Institution held on Monday, April 16.

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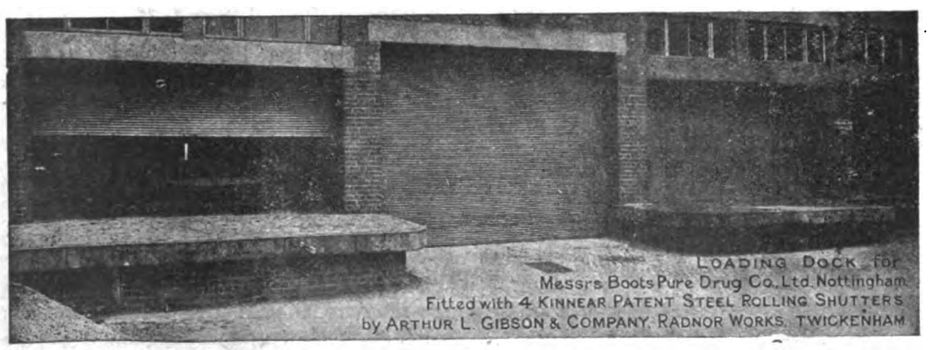
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of the country, it is urged that repeal is the proper course. Nothing short of that would remove the feeling of insecurity, which is the chief element of the evil which has been wrought, and therefore upon national, as well as economic grounds, Part I. of the Finance Act of 1909-10 should be repealed, not as an undue favour to holders of landed property, but as a measure of necessity directed towards the conservation of the national resources.

It is obvious that in good husbandry the ground must be cleared before the crop can be cultivated, and, therefore, in summarising the conclusions of this paper, the suggestions are placed in the following order:—

First, let the dead hand of harmful legislation be removed, and next, let provision be made for liberal financial assistance to all sections of the property market. I venture to predict that if such assistance be forthcoming, there need be no long transition period of depression, but that this enormous market may, with a little help of a most reasonable and legitimate nature, be speedily restored to the prosperous condition which its excellence merits.

No excuse is necessary for the stress which is laid upon the importance of the problem of the property market, for that is self-evident, and I trust that not only has its urgency been demonstrated, but also that it is capable of solution and worthy of the best efforts which the nation's advisers can bring to bear upon the subject.

The inquiry which elicited the facts upon which this paper is based has brought to light many other points worthy of attention, which, although not directly related to the property market, have yet a bearing thereon, in that they affect the general well-being of the people, and so reflect upon that department of natural industry which provides them with their dwelling-places and business houses

As an example, the impossibility of foreign travel has filled many of the holiday and health resorts in our own land, bringing something like a revelation to many who had apparently been under the impression that to enjoy beauty of scenery and healthful recreation it was necessary to go abroad. The same cause filled the British spas and watering-places. British and foreign visitors alike discovered that both the waters and the treatment were of the highest merit, and that the "cure" could be found there as readily as at any Continental "kurhaus." The fetish of the German spa being thus broken, the future prosperity of our native spas remains in the hands of those who are responsible for their conduct, and who have it within their power, by wise management, to secure a constant stream of visitors drawn alike from our home population and from abroad.

The quick and effective response evoked by the stern call of necessity in the production of many materials which we had loosely allowed to slip from our grasp into that of the foreigner—the revelation of the immense and almost unsuspected power of manufacturing any given article—and the production of commodities which had never previously been made in any quantity in this country, should secure to our people new and important fields of commerce, if wise precautions are taken to avoid the sterilising of these founts of industry.

We have learned the unwisdom of leaving home production to the ungoverned principle of supply and demand, and of regarding purchase in the cheapest market as the essence of a nation's economic welfare. This course of action in the past has placed Britain in a position of serious disadvantage in this time of war. Let us in future produce under the pressure of patriotism those things which we have produced under the pressure of war conditions, and make it certain that never again shall Britain be found, in her extremity, dependent upon a foreign and possible hostile Power for things essential, not only to her welfare, but to her very existence. The lessons of adversity are priceless, and if under the stress of common danger, in which capital and labour have joined hands in the trenches, there should grow up a better understanding born of mutual knowledge, if, in the arrangement of our national affairs, political economy should be associated with patriotic economy, if the life of the nation should be lifted to the plane of the ideals for which it is striving, then the benefits which are gathered from the smoking ashes of the battlefield would outweigh even the heavy price which has been exacted by this war of the worlds.

(To be concluded.)

BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders, the address is, as a rule, local.)

ENGLAND.

GLOUCESTERSHIRE.

Cheltenham.—Garage, Regent Street, for Messrs. Dale, Forty & Co.

"Ashcroft," Swindon Road: additions for Mr. B. Bradbury.

HAMPSHIRE.

Portsmouth.—Eight houses, Heysholt Road, Southsea, for Mr. G. Gumbleton.

HERTFORDSHIRE.

Hemel Hempstead.—West Herts Hospital: addition. Apsley Mills: extensions.

KENT.

Ashford.—House, Croft Road, for the Ashford Underwear Company.

LANCASHIRE.

Nelson.—Proposed church, Clover Hill, in connection with St. Paul's Church.

NORTHUMBERLAND.

Allendale.—Bungalow, Allen View. Mr. Newman, builder.

NOTTINGHAMSHIRE.

Kelham (near Newark).—Proposed sugar-beet factory, for the British Sugar Beet Growers' Society, Ltd.

SUSSEX.

Hove.—No. 47 Selborne Road: alterations for Mr. E. Cohen.

WESTMORLAND.

Kendal.—House, Gillingate. Mr. J. Stalker, architect, 57 Highgate.

WORCESTERSHIRE

Kidderminster.—Caldwell Foundry: additions for Messrs. Bradley & Turton.

YORKSHIRE.

Huddersfield.—Royd's Hall Hospital: additions.

Ordsall (near Sheffield).—U. M. Church.

Snainton.—Proposed house, for Mr. J. H. Robinson.

Wakefield.—Belle Vue Wesleyan Chapel: proposed school.

WALES.

Garth (Brecknockshire).—Proposed church hall.

SCOTLAND.

Bellshill and Mossend.—Proposed Y.M.C.A. premises.

Coatbridge.—Works (£250,000) for the Scottish Iron and Steel Company, Ltd.

Cullen.—No. 3 Seatown: additions and alterations, for Mr. W. Mowat.

Ellon.—North Braco Farm: addition. Mr. W. Davidson, architect.

Glasgow.—"Kirktonfield House," Neilston: alterations for Mr. George Hamilton.

Offices, &c., Scotstoun West, for Messrs. Yarrow & Co., Ltd.

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FORTHCOMING EVENTS.

Wednesday, May 16.

Royal Institute of British Architects : Informal Conference on "Co-operation in Design"; opener, Mr. A. D. Jemmett, at 3.30 P.M.

Thursday, May 24.

Concrete Institute : Eighth Annual General Meeting, at 5.30 P.M.

Saturday, May 26.

Edinburgh Architectural Association : Visit to Riccarton House, Currie.

Friday, June 1.

Town Planning Institute : Paper entitled "Draft Act, with respect to Planning and Regulating the Use and Development of Land for Building Purposes in Cities, Towns, and Rural Municipalities in Canada," by Mr. Thomas Adams, F.S.I., at 6 P.M.

Monday, June 4.

Royal Institute of British Architects : General Meeting.

Wednesday, June 6.

Royal Archæological Institute :

Saturday, June 9.

Edinburgh Architectural Association : Visit to Inveresk.

Monday, June 25.

Royal Institute of British Architects : Presentation of Royal Gold Medal.

Thursday, June 28.

Institution of Municipal and County Engineers : Annual General Meeting (three days).

Saturday, June 30.

Edinburgh Architectural Association : Annual Excursion to Dunfermline.

Wednesday, July 4.

Royal Archæological Institute :

ARCHITECTURE AT THE ROYAL ACADEMY.

THE most striking feature of the Architectural Room at the Royal Academy this year is the presence of photographs on the walls as well as of the usual hand-made drawings in all their varied media which up to the present have been the only acceptable method—save a model or two—for the representation of architecture at the Royal Academy.

When the innovation was first announced our curiosity was aroused as to the precise method that would be adopted by the hanging authorities for the assembling together of the varied forms of presentation. The question has been solved by the commingling of photographs, for the most part in groups, and drawings side by side. The result, as a coup d'oeil, is scarcely satisfactory, and enforces the truth of the old principle that pictorial representations in different media should be kept separate in hanging, and not associated on the same wall or even in the same room. Oil paintings, water colours, engravings should each have their separate locale, and their juxtaposition should be avoided.

As we enter the Architectural Room we see in front of us, on the south wall, a substantial group of photographs massed in the centre and flanked by two of Mr. Walcot's brilliant water colours. These latter absolutely kill the photographs, and on their part are enhanced by the contrast. Truly the draughtsmen whose work is hung next to photographs have no cause to complain of the new conditions, and must be delighted at the admirable foil granted to their handiwork. It matters not whether they be water colours, pen and ink, or monochrome brush work, the drawings always score. To the unprejudiced observer the general effect of the room is patchy and irritating.

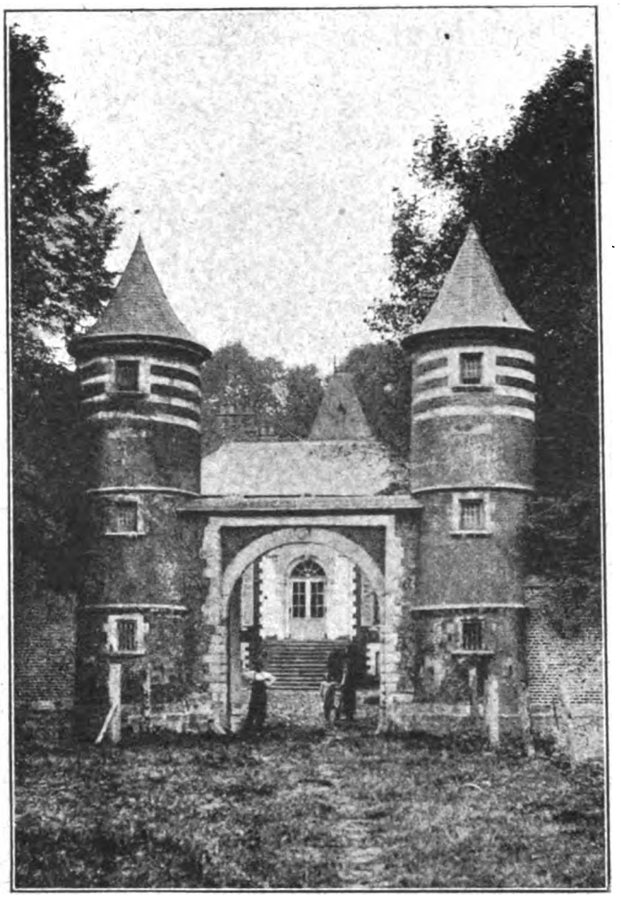
At the same time it is difficult to see that any better arrangement could have been adopted, given the dominant condition that architecture at the Royal Academy is restricted to its present quarters. The only possible alternative would have been to display the photographs on screens, leaving the walls for drawings, and for that the size of the room is insufficient to ensure a satisfactory result. To have devoted some walls to drawings and some to photographs would have been banal.

Therefore we must be prepared to accept things as they are, in consideration of the undoubted value of photographs as a means of exhibiting architecture. There are some things in a finished work which are inexpressible in a drawing however skilful the draughtsman. On the other hand there are qualities that can be put into a drawing of which our professional architectural photographers do not seem to have yet commenced even to dream. The photographs in the Architectural Room embrace straight prints, enlargements, and in one or two instances retouched negatives and worked-up prints; but it is quite clear to us that if the exhibition of architectural work by photographs hung on the walls of a gallery is to become generally accepted, there is a field for an extension of artistic technique in the work of the photographer. Up to the present the objective of our professionals has, we fancy, been largely influenced by considerations of reproduction. Now for exhibition as a pictorial presentment of architecture, a photograph ad hoc needs quite a distinct treatment to that of one whose purpose is that of a medium for reproduction by collotype, half-tone or lithography.

Turning now to the work exhibited by the architect Academicians and Associates we find Sir Aston Webb represented by five frames. "Worksop College Chapel" (1,348) is an interior photographic enlargement in which the deficient depth of focus softens the foreground and accentuates sharpness in the distance. In this case the subject does not gain by the use of photography. "No. 35 Porchester Terrace, W.: additions and alterations" (1,416), is shown by a couple of pen and ink drawings by Mr. Raffles Davidson, who has adopted a wriggly line to soften presumably the smug Bayswater respectability which seems to cling to the "alterations." "Imperial College of Science and Technology, South Kensington: main entrance" (1,453), shown photographically, gives a far better impression of the satisfactory fruition of the semi-circular alcove and dome than was foreshadowed by the drawing of some years back. "Goldsmiths' Extension of the City and Guilds (Engineering) College, Prince Consort Road, South Kensington" (1,455), is a general photographic view of this dignified and well-proportioned building. "Victoria and Albert Museum: main entrance" (1,474), is also a photograph, which does justice to the intricate detail of Sir Aston's design.

Mr. Reginald Blomfield sends photographs and a drawing. "La Trinité, Jersey: granite. For Athelstan Riley, Esq." (1,413), shows the advantage of a photograph in its rendering of the texture of the old stone and its distinction from the new. It also indicates how well Mr. Blomfield has managed to make harmonious additions to an old house. "Proposed New Buildings, Sherborne School" (1,433), is a pencil drawing with plan, showing a picturesque group with central tower,

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ENTRANCE TO THE CHATEAU DE RELINGUE, LILLERS.

of traditional collegiate character. The absence of modernity extends to the planning of class-rooms, which are lighted by apparently equal windows on both sides and even both ends. "The New Public Library: Lincoln" (1,439), is a photograph of a quite excellent one-storey building with a two-storeyed central feature capped by a dome. The whole thing is a charming piece of design, finely proportioned and well detailed, and a photograph is the preferable method for its presentation.

Sir Ernest George has only one subject in the Architectural Room, a poor photograph of the "Royal Academy of Music, Marylebone Road, N.W." (1,466), which does not do justice to the building.

Mr. Ernest Newton pins his faith to photographs. "'Luckley,' Wokingham" (1,376), is a charmingly selected part with the entrance and a projecting wing. "Ardrun Place, Blindley Heath" (1,383), is shown by three photographs depicting the entrance, terrace and general view of the garden front of this fine example of Mr. Newton's work in the stately manner. "Upton Grey Manor" (1,391) is a complete contrast in treatment, with the seventeenth-century atmosphere of a typical south county manor house, in timber, plaster, tile and brick. All Mr. Newton's photographs are excellent, well advised and expressive of the designs they portray.

Mr. E. L. Lutyens has his design for a Spanish house, planned around a patio, illustrated by the two Walcot drawings to which we have already alluded, "South Elevation and Water Garden, El Guadalperal, Spain" (1,394), and "Entrance Front, El Guadalperal, Spain" (1,408). The local colour has allowed Mr. Walcot to flame more vehemently than ever with a more than usually complete obscurantism of detail, but there is sufficient to indicate that Mr. Lutyens has aimed at a Spanish house. "'Heathcote,' Ilkley: the staircase hall" (1,379), "'Heathcote,' Ilkley: south-east corner garden, garden front and pool" (1,380), and "'Heathcote,' Ilkley: the morning room" (1,421), are shown by photographs, the last being a particularly charming piece of internal treatment. "The British School, Valle Giulia, Rome" (1,461), is shown in a bird's-eye pen and ink perspective, a method which, whatever advantage it may have as an indication of plan, is not, we think, the most favourable to a dignified work on classic lines.

Mr. E. S. Prior sends only a "Sketch Model of Ciborium over the High Altar of Norwich Cathedral Church. To be executed in Derbyshire marbles and alabaster (white)—scale quarter full size." In this Mr. Henry Wilson collaborates. We hope if the work is ever carried out there will be considerable improvement on the sketch-model. It is too much to ask for archæological correctness or even suitability to environment from the authors, but we should like to see the architectural canon of adequacy of support more followed in the design. The octagonal marble posts (stop chamfered to square at the top) may be sufficient for the deep lintel and dome, but they do not look it, and at any rate the marble will need very careful selection to avoid catastrophe. But the inanity of the brackets, both those qua-capital to the posts and those qua-pendentive to the dome, is in form too utterly feeble. Constructively, they are needless and useless; expressively, they are contemptible. In respect of the iconography we fail to see the connection between the signs of the Zodiac and the Ciborium or the High Altar of an Anglican cathedral.

NOTES AND COMMENTS.

RURAL housing is probably the most difficult problem with which housing reformers have to deal. It is complicated especially by the still remaining elements of the system on which the agricultural labourer has been paid during the palmy days of the farming industry. That is to say, the cash wages of the worker are less than the total earnings because these latter have commonly included quasi-gifts of farm produce and cottage tenancies at non-economic rents. A further difficulty is that under modern conditions—peace conditions that is—an English agricultural labourer does not, we might almost say cannot, earn his keep. He does not produce enough beef and bread in a week, as compared with the productions of Canada, Australia, New Zealand, and the Argentine, to pay for his own food and clothing, and an economic rent for a cottage with three bedrooms, parlour, living-room, scullery, and bath, with an ample garden, which our zealous housing reformers consider should be the abode of a self-respecting labourer.

Until the war, this country has pursued the national policy of reliance upon the overseas agriculturist, who can produce food at a price with which our native farm labourer cannot compete. The war has shown that this policy in certain events means inconvenience, privation, and the threat of starvation. The Corn Production Bill is a reversal of that policy, and purports to fix minimum prices for corn and a minimum wage that shall induce the farmer and the agricultural labourer to produce more food in this country. It assumes that it is worth while for the nation to pay these agriculturists more than they earn.

The National Housing and Town Planning Council take the view that the minimum wage of 25s. proposed by the Bill will not be sufficient to enable the farm worker to pay an economic rent for the kind of home they, as housing reformers, think he ought to have. They have accordingly addressed a letter to members of Parliament advocating an increased minimum wage and hinting at a figure of 30s.

Their appeal to Parliament is based on three points:—(1) That the proposed minimum will not bring prosperity and hope to the rural labourer, but will leave him for the greater part of the period in which the provision of the proposed new Act will operate, still in a condition of poverty; (2) that as the townsmen—most of whom are working people—are asked to consent to the passing of the clauses dealing with the guaranteeing of food prices for a

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series of years, on the ground that it will bring prosperity to labourers and farmers, the working people in the towns have a right to ask that the aid and encouragement given to labourers shall be real and not illusory; (3) that to adopt an inadequate standard as a minimum wage will prejudice all the efforts of housing reformers to transform the countryside by securing the supply of healthy homes to be let at economic rents.

The Council assume that the Government grant towards the cost of building rural cottages will be such that the cost of a desirable cottage will be £250, and of one similar but without parlour £200, on which the tenant will pay economic rents of 7*s*. 1*d*. and 5*s*. 8*d*. respectively. The raising of the minimum wage may achieve the object of attracting the labourer, but it must be remembered that the minimum prices for corn are on a descending scale, and in the opinion of many experts at their lowest will require very skilful or fortunate farming to make it possible for the farmer to pay the minimum 25*s*. and realise a profit. If the wage is raised to a figure that means a loss to the farmer increased corn production will not result.

We quite agree that the "self-respecting" labourer should be provided with a cottage with a parlour and three bedrooms if he desires it, which he does not in all cases. There is another course which the State can adopt—an increased capital grant which will enable the ideal cottage to be let at a non-economic rent in accordance with the traditions of English rural life. But this is a big question and requires much consideration. It is clear, however, that an increase of the minimum wage is not absolutely essential to the reform of rural housing.

THE resolutions of the Congress held last Easter at Oxford under the auspices of the National Housing and Town Planning Council were considered and approved by the Scottish National Housing and Town Planning Committee at a meeting held on Friday last in the Trades Hall, Glasgow, under the presidency of Sir Thomas Hunter, Town Clerk of Edinburgh. We have so recently dealt with these resolutions that we need not now recapitulate them.

Housing and town planning are so intimately interwoven that it is not surprising that the Birmingham City Council has come to the conclusion that it is unwise to perpetuate the arrangement by which their operation was divided between the Housing Inquiry, Public Health and Housing, and Town Planning Committees, and has adopted a proposal of the General Purposes Committee to transfer certain duties of the Public Health and Housing Committee to the Town Planning Committee, this Committee to be reconstituted and called the Housing and Town Planning Committee. The object of the change, as explained by Alderman Sir William Bowater, was to allow the new committee to deal in future with all matters of housing and town planning. The resolution, which he moved and which was adopted after discussion and some opposition, was: "That as from June 1, 1917, the Public Health and Housing Committee (in future to be designated the Public Health Committee) be relieved of the powers delegated to them by the Council under the Housing of the Working Classes Acts, 1890 to 1909, with the exception of those contained in sections 14, 15, 16, 17 (1), and 36 of the Housing and Town Planning Act, 1909 (operations under the latter section being carried out in conjunction with the Housing and Town Planning Committee)."

It seems strange that when one party to a contract is prevented from carrying out the performance thereof under Government action for the Defence of the Realm, the other party should sue for damages, as in the case of the master and wardens of the Innholders' Company against Mr. Frank Wainwright, surveyor, to recover £550, two quarters' rent alleged to be due under a building agreement. The defendant denied liability.



CHAPEL OF NOTRE DAME DE LA MISERICORDE, LILLERS.

Mr. Neilson, for the plaintiffs, explained that defendant entered into an agreement with the plaintiffs by which he undertook that when the leases of certain houses in Moorgate Street, E.C., expired he would pull down the houses and rebuild other houses on the site; and plaintiffs agreed that when the new buildings were completed they would grant the defendant a lease of them for 99 years. In June 1916 the leases of the old houses came to an end, and the defendant under the agreement took possession and pulled them down. He was liable to pay a rent of £1,100 for the year. In the following month the Minister of Munitions issued an order prohibiting the erection of any new buildings without a licence, and when the defendant applied for a licence it was refused. The agreement contained a clause providing that until the lease had been granted and circumstances permitted the defendant should pay the rent. Counsel submitted that the defendant was liable to pay the rent, and that the order of the Minister of Munitions did not relieve him from liability.

Mr. Willoughby Williams, for the defendant, contended that the order of the Minister of Munitions suspended the agreement, and therefore the plaintiffs could not recover.

Mr. Justice Ridley held that the defendant could only become lessee after he had carried out the purpose for which the agreement was come to. Strictly speaking, there was no tenancy until the lease was granted. The obligation began during the time when the old houses were being pulled down and the new ones were being erected. For that period the relationship was not between owner and tenant, but simply an engagement between two contracting parties, which was suspended by the unforeseen event of the Government proclamation. The Court of Appeal might possibly hold that the proclamation put an end to the agreement altogether; he merely decided that it was suspended, and gave judgment for the defendant, with costs, on that ground.

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By the death of Mr. Henry Benjamin Wheatley, D.C.L., F.S.A., London loses one of her most distinguished historians. His great work was his "London —Past and Present." He also contributed "The Story of London" to the Mediæval Towns series, and other volumes which bear his name are "Round about Piccadilly and Pall Mall," published nearly fifty years ago, and "Hogarth's London," which was one of his last published books. Mr. Wheatley was for many years president of the Samuel Pepys Club.

At the annual festival of the London Association of Foremen Engineers, the Minister for Labour, Mr. John Hodge, expressed what we believe to be the true opinion of all intelligent workmen, after the lessons the war has taught. Mr. Hodge, in replying for the visitors, said after the war they could not go back to pre-war conditions. They could not go back to the old ca' canny policy, because that meant going back to the old wages. The sooner every man did a skilled man's work and got a skilled man's wages the better it would be for all concerned. The workmen o the past had been no more guilty than the employers. The workman had not given his best because the employer did not give his best. Restriction of output was uneconomical; it was a mistaken and stupid policy. He was a believer in payment by results, but he was not a believer, when a man was earning good wages under this system, in the employer coming along and cutting the rate. Where labour-saving devices were brought in and new methods of manufacture the profits should be divided between the two sides. But he believed that after the war a new spirit would animate both sides. If labour was to get the minimum wage for which it had been striving it could only do so by capital getting a return for it, and consequently illegitimate foreign competition had got to be stopped.

At the closing meeting of the spring session of the Iron and Steel Institute Professor N. Tschischewsky, of Tomsk, described the technical application of "the case-hardening of iron and steel by boron" as a feasible industrial operation. Surface cementation to a small depth for machine parts or where much wear occurs is easily possible in a short period with the use of 20 per cent. ferro-boron powder. It was pointed out that, whilst annealing was necessary in order to confer the necessary hardness on articles case-hardened by carbon, boron confers hardness without the necessity of any special heat treatment. Microscopical examination shows that the hard white layer of the case-hardened part of the steel consisted of boric-pearlite with a eutectoid structure.

ILLUSTRATIONS.

THE NEW CUNARD BUILDING, LIVERPOOL.

IN the issue of "The Architect" for June 16, 1916, we gave a full description of the new Cunard Building. We now present photographic illustrations from the work as executed from the designs of the joint architects, Messrs. Willink & Thicknesse, and Messrs. Mewes & Davies. The surveyors were Messrs. Thornely & Furbur, of Liverpool. The contractors were Messrs. W. Cubitt & Co., of 258 Gray's Inn Road, London, W.C. Mr. J. H. Bennetts was Messrs. Cubitt's manager until December, 1915, when he was called away on Government work. He was succeeded as manager by Mr. F. W. Doe. The clerk of works was Mr. W. Riding and his assistant, Mr. T. P. Cooke. The sub-contractors were as follows:—Art Pavements and Decorations, Ltd., St. Paul's Crescent, Camden Town, London, N.W., walls and floors to central corridors and all lavatories; Bellman, Ivey & Carter, Linhope Street, Dorset Square, London, columns in Cunard public space; M. B. Bounds & Son, 2, 4, & 6 Gaza Street, New Street, Kennington Park, London, S.E., marble screens; British Luxfer Prism Syndicate, Ltd., 16 Hill Street, Finsbury, London, special glazing to large roof lights and pavement lights; J. B. Colman & Sons, 54 King Street, Brighton, revolving doors; R. Crittall & Co., 197 Wardour Street, London, heating, ventilating and cooking; Dyson & Gibbs, Ltd., King's Heath, Birmingham, steel grilles and casements; Galbraith & Winton, 185 St. Vincent Street, Glasgow, marble to Doric corridor; James Gibbons, St. John's Works, Wolverhampton, locks and ironmongery; E. O. Griffith, Bevington Hill, Liverpool, stone carving; W. Griffiths & Sons, 6 Gt. George Street, Liverpool, all plumbing and sanitary work; Higgins & Griffiths, Orchard Street, Portman Square, London, W., electric lighting and bells (under the supervision of Messrs. Albion T. Snell and Partners, of London); G. Jackson & Son, 49 Rathbone Place, London, W., plain and decorative plaster work; W. Macfarlane & Co., Saracen Foundry, Glasgow, cast-iron balustrades generally and C.I. windows; Milner's Safe Co., 8 Lord Street, Liverpool, strong room doors; F. Morton & Co., Garston, Liverpool, steel works for area roofs; Otis Lift Co., Falmouth Road, London, electric and hydraulic lifts; Quiggin Bros., 75 Renshaw Street, Liverpool, ironmongery; Scott-Morton & Co., London, oak work in Cunard board room; John Stubbs & Son, Crown Street, Liverpool, marble screens and pavements; Trinidad Asphalt Co., Hawthorne Road, Bootle, all asphalte work to roofs, cornice treads to staircase, &c.; Trussed Concrete Steel Co., London, steel reinforcement (under the supervision of Mr. B. L. Hurst, A.M.I.C.E., A.M.I.M.E., London); United Stone Firms, Nicholas Street, Bristol, supplied all Portland stone and granite work; J. Whitehead & Son, Imperial works, Kennington Park, London, S.E., marble work, central corridor; Williams & Watson, 79 Victoria Street, Liverpool, glazing; Witter & Son, Crown Works, Bolton, emergency staircase.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

THE subject of the "Education of the Architect," dealt with at two previous Conferences of the Royal Institute of British Architects on February 7 and February 21, was further discussed at the adjourned discussion held at 9 Conduit Street on May 2.

Professor W. R. Lethaby, who presided, said he ought perhaps to answer one or two direct questions which had been put at previous meetings. Mr. Jemmett asked why he would "concentrate on structural perfection," and why he did not advance to "some theory by which to express ideas, the science of æsthetics, psychology, and human nature"? Because he did not think there could be any agreement on æsthetics and human nature so that they could be taught by the Institute it did not follow that those things did not interest him profoundly. Indeed, it was just because he wanted a true artistic or human-nature content given to their buildings that he would sweep away the teaching of grandiose bunkum as architectural style. Although good bunkum might be jolly sometimes, he wanted a due proportion of tenderness, gravity, sweetness, and even dulness. He wanted the most exquisite poetic beauty, but he did not see how the Institute was to teach how to produce it. Therefore, he said, "Train us to practical power, make us great builders and adventurous experimenters, then each of us can supply his own poetry to taste." Then Mr. Weir asked him why he joined the Institute It was from many mixed motives, but the main one was that his reading and thinking convinced him that guilds or trade unions were the most constant and proper form of association, and that the improvement of all sorts of employment might best be effected through the unions or guilds. Then he had seen that the proper authorities for technical education were the several guilds, and the proper centre of activity for the Institute was in education, and he tried to think that in joining the Institute he might share in educational work. Modern architects had to deal with many complex and technical matters: the building on congested sites of great hotels, railway

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stations, factories, business premises, and the like, and for this it was clear there must be highly organised scientific training, even if that training was to be tested by examination. This explanation might lead the meeting to the general question of differentiation of types. More than one speaker had referred to the desirability of closer partnerships of diverse gifts. What were the main divisions into which different faculties might run? There seemed to him to be about five—(1) the expert constructor and planner, (2) the finisher or furnisher, (3) the expert on old buildings, (4) the man of business, and (5) the country builder and general practitioner. The general practitioner was the one the Institute naturally began with. It was the foundation of the whole thing, and he hoped as the Institute went on with its educational work it would gradually and naturally open up the way to really high specialisation in different types. The Institute did not fill its part as a trade union according to modern conceptions. The trade unions had come to occupy a position in the State functioning publicly collective bargaining, and making their wills felt in national life. Whenever and however had architects been willing or able to make their collective will felt? The administrators of public affairs seemed to look on them as city-clerk sort of people out for hire, and if they were ever called in to advise it was usually as a mere screen so that they might the better exercise their own will under cover of "experts." If the experts did not advise just what the organisers wanted the advice was contempuously brushed aside. The Institute had to see to it that in matters of public building policy that the advice of architects was not only sought but taken. In regard to the question of public control he raised the question of the possibility of reviving the Surveyor-Generalship, and it seemed to him it would be quite reasonable to aim at putting an architect again in control of the Office of Works. Coming to educational policy, the Institute's business was with civilisation, town improvement, national housing, quality in building, cottage types, the preservation of historic buildings, better public memorials, and a public policy of betterment all round. They had been educated long enough as purveyors of whims, ecclesiastical and domestic. Their education must be recast in the public service. The Institute should become a centre of stimulating life. They should try and draw together publicists, thinkers, economists, critics, town and trades union officials, and the masters of the City Guilds in an effort to get something done in bettering our towns. It was not only their duty but their business. All their own powers should be reconsidered from the same point of view of a public policy. Their committees needed new instructions, their scholarships should be reshaped, and their whole educational requirements needed to be penetrated by a spirit of activity. They had in the liberal prize endowments of the Institute and in the original essay which formed part of the matter examined valuable means for opening up special interests. It seemed to him that the essays had been a marked success. Sir T. Jackson's idea of a real school of architecture where the young craftsman, builder, and architect would work together seemed to him convincing commonsense.

Mr. H. Wilson said that what they were really out to consider was not whether architecture was a profession or an art, or whether one school was better than another. They were only concerned, incidentally, with the future of the Institute. They were really up against first and last things. They could not begin to think about the problem of education in any of its phases without asking themselves—(1) What life means to us and our children, and (2) What we ask from life for ourselves and for them. Now, it was quite certain that whatever they asked from life, life gave. They said they wanted better architectural education, cleaner cities, and more fruitful lives for all. Would it not be possible for the Institute to go to the root of things, realise that they could not even begin to train architects until the foundations of their general education had been properly laid in concrete studies, and, realising this, take the lead in approaching the Ministry of Education with carefully considered projects of reform, and add its great influence and weight to the now general demand? Would it not be possible to form a special committee to draw up a memorandum on the kind of elementary training needed by those designed for architecture. This memorandum would be signed by all who had the interests, not of their profession alone, nor of the Institute, nor of England even, but who had the interests of the whole world at heart. What they did in the next few years might determine the history and fortunes of humanity for centuries. With a view to such a memorandum, it might be useful to ask themselves what were the needs of architecture and building to-day. For building production they needed skilled artificers—using that word in its widest sense—to whom the architect could hand his wishes or instructions, and on whose knowledge, skill, and artistry he could rely for the realisation of those instructions. No great building had ever been produced in any other way. At present they did possess in the building trades a large number of workers whose mechanical skill was of a high order, but they must remember that the completest mechanical skill, the utmost fidelity to detailed drawings, would not, and could not, produce that sense of organic perfection which they received from an old building. This was not a thing which time produced, but was the result of organic labour. The quality of any work, that indefinable something which showed like a bloom on any building, depended on the amount of individual artistry put into it by its producers. Architecture was a communal product. They needed the trained hands of artificers, led by a careful captain, before vital architecture could come again into being. Moreover, it must be asked for by the community, which meant again that they must educate and make that community possible. It was evident that, whilst they needed architectural education, they had no less need of educated and trained craftsmen, for the ultimate success of the work depended upon their contribution of life interest to the whole. Architects must be better trained in craftsmanship, and craftsmen must be trained to help them. The two conditions were inseparable. There must be more provision for craft teaching, for technical instruction, for elementary workmanship in all the schools, and there must also be more special schools for research in special crafts. Men talked of theoretical knowledge, but there was no such thing apart from practical knowledge. There was only one way of learning the theory, and that was by practice of the craft. If this be true—and surely it must be—then the theory of modern building can best be learnt at the bench and in the yards and engineers' shops. That fact was the corner-stone of Ruskin's teaching. It had long been the fashion in some circles to despise Ruskin, but Ruskin lived, and that for which he laboured could never die. All over the country were scattered artists and communities led by those who, having learned their trade by doing it, were now spreading sound ideals, training young craftsmen, and even influencing the trend of general education. Further, they were providing, slowly but most efficiently, just what was lacking in the previous revivals—the skilled creative craftsmen without whose co-operation no real building was possible. Could they not persuade the Institute and all architects to employ them, and to resolve not to put up even the humblest building without finding in that building a place for some form of independent, individual craftsmanship? His last plea was for an immediate effort of co-ordination in all branches of artistic and general education. All education should be artistic, for all education should be creative. Could not the Institute organise conferences as the best means of co-ordinating not merely the educational forces of the country, but of bringing into their influence that vast school of creative ability which gave to England its peculiar elasticity under strain, its

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superabundant vitality, its daring and resource. The Institute, which represented creative work, was in the very forefront of the eternal battle. It had done great work, and it would do far greater if it could realise that the task before it was neither more nor less than the regeneration of England.

Professor Beresford Fite said he would like to refer to Mr. Weir's paper, which had been printed and which he had had an opportunity of reading, and which contained some practical suggestions. It raised the very important question of the examinations conducted by the Institute. Connected with the examination controversy was the matter of registration. It would be useful to ask themselves what were the objects of the examinations of the Institute. The first object, he took it, was to provide the Institute with a test for admission to its membership, and the second object might be that it might provide a proper qualification for an architect. He agreed with Mr. Weir in declining to admit that the examinations did provide that qualification. The third aspect of an examination was that it was a necessary part of an architect's education. That brought them to examine what the examination practically was in operation, and his own view was that it provided an admission test to the Institute, and that was a very practical and real fact, for it was the goal of all education. Whether examinations were a mistake altogether educationally was another matter. Possibly they were, but, as education was at present conducted, examinations were almost a necessary part of it, and the Institute examination had, in fact, become the educational programme for the architectural profession. The examinations were under revision, and the Institute, the Board of Architectural Education, and the Council had approved of certain reforms in the direction of appointing paid examiners for all the written papers, which would lead to a codification of all the written examinations. For the present, the position of examination in design was to be left as it was—designs were still to be judged by a committee of examiners. He thought there was considerable need for freedom in examination and for considerably more freedom than the educational programme provided. The educational system failed because it took no stock of practical work. The need for practical work in an architect s training was quite important, and the whole tendency of the examination system had caused that to be overlooked. He would like to see practical work in a contractor's yard or in a workshop made part of the education, and a place under a clerk of works or under a builders' foreman on a long contract job would be the best possible educational training for the architect. What they wanted was an educational idea, an educational truth in architecture that would be as true in India as it was true in England. Their educational outlook at the present moment was entirely limited—they had no real building doctrine that was true all the world over. At present they were practically divided into two broad schools—the artistic and the constructive. He very much disliked the division, but the Board of Education had stereotyped it for use in technical and art institutes, and they accepted it just in the same way in their educational programme. Coming to the practical question of the Institute and its prizes, in many ways those prizes became landmarks of the student's ideal. Their own prizes amounted to no less than £365 per annum, which was a very considerable sum. In addition, the Architectural Association, apart from its own class prizes, had travelling studentships amounting to £112 a year, and if they looked at the Royal Academy, &c., there was plenty of prize-money in existence. As none of those prizes had been awarded for two years, and would probably not be awarded again this year, there would be a very considerable accumulation of capital when the war was over. The Institute gave four prizes for design, three for drawing, two for examinations, and one for the essay. With that endowment of £365 a year, they ought to do a great deal for education. He would suggest that they should take into consideration the question of revising and readjusting the prizes, so far as the trust deeds would allow, so that they might be brought into a scheme for stimulating education as well as for stimulating the practice of design; and a third object he would like to see them applied to was creating records of ancient buildings. He thought they might ask the Institute to define a prize policy with those objects in view. They had lost a valuable series of measured drawings because they had not taken the opportunity, when they were in the possession of the Institute, of codifying them. Another suggestion he would make was that all the prizes should not be awarded annually. If, for instance, the Soane Prize was offered triennially instead of once a year, it would amount to £300, which would give the successful student an opportunity of going to the East. He was convinced that undirected travelling by a student was misdirected travelling: to ensure good results the student must map out a definite programme of travel—he must go abroad to do definite work, and he must bring back definite work. His final suggestion was that no prizes should be awarded for foreign travel unless they were accompanied by an examination in a foreign language. He would propose that the Conference should recommend the Council to take into consideration the revision and readjustment of its prizes in order to stimulate, first, education, second, the art of design, and third, to constitute a series of records of ancient buildings.

(To be continued.)

THE CONCRETE INSTITUTE.

THE President (Mr. F. E. Wentworth-Sheilds) was in the chair at the seventy-fourth ordinary general meeting of the Concrete Institute, held at Denison House, Vauxhall Bridge Road, Westminster, on Thursday, April 26, when Mr. H. C. Johnson, M.C.I., of Cork University, read a paper entitled "A Method of Proportioning Materials for Concrete," with which he submitted a report of tests of the method compared with the usual style of giving proportions of materials.

Mr. Johnson made a comparison of the usual 1 : 2 : 4 method of proportioning concrete with one in which, no matter what the aggregates might be, the quantity of cement in the finished material remains the same for any given volume. The percentage of dry cement, by volume, contained in the extremes of 1 : 2 : 4 concrete would, he said, vary all the way from 18 per cent. to as high as 24 per cent. The proposed method ensures a constant percentage of cement in the neighbourhood of 20 to 21 per cent., and a specification based on the method would do at least two things:—

(*a*) Demand that exactly the same quantity of cement should enter a structure, whether it be built with gravel as the aggregate or with broken stone as the aggregate. (Such would not be the case when it was specified that 1 : 2 : 4 must be the proportions.)

(*b*) Give a contractor or any other person the correct volume, and therefore the correct weight, of cement, that the volume of the concrete in the structure would demand.

Another part of the method was that some large aggregates were given less sand than others, therefore the ratio of sand to large aggregate was not in the proportion of 2 to 4, but depended on the "workability" and weight per cubic foot of the concrete. It demanded that actual tests to determine the proportions should be made of those materials which it was intended should go into the job, and therefore prevented an excess of fine stuff being used, as would otherwise be the case. The tests showed that the weight per cubic foot was increased from 2 to 3 lb., while in one or two cases the addition in strength was as great as 500 lb. per square inch at twenty-eight days. In other cases there was an addition in strength even when less cement was used.

It was well known that gravel and some other concretes, when mixed with 1 : 2 : 4, were not as strong as hand broken stone concretes, also that the larger the aggre-

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gate, other things being equal, the stronger the concrete. 1 : 2 : 4 gravel concretes were, on the average, about 12 to 15 per cent. weaker than stone concretes. They contained also, on the average, 10 to 15 per cent. less cement. Three-quarter inch aggregate concrete was stronger than ¼ inch aggregate concrete, while 1½ inch aggregate concrete was stronger than either. The ¼ inch aggregate had 500 per cent. greater surface for its volume than the 1½ inch aggregate. It was because of those two last-mentioned differences that the writer was prompted to make the tests included in this paper, and over two years ago he pointed out in an article entitled "What is a 1 : 2 : 4 Concrete?" that by mixing concrete for two jobs of exactly the same size and volume, one, using gravel as aggregate, would call for 100 tons of cement, while the other, using broken stone as aggregate, would require 130 tons of cement. In spite of this there were a great many who believed that all 1 : 2 : 4 concretes contained the same amount of cement per unit volume, and therefore ought to be, in so far as cement content is concerned, of the same strength. If that 24 per cent. could be saved by a contractor, it went straight into his pocket, plus the saving in not having to handle that quantity; in other words, it was a clear profit, but a loss to the structure—a loss that seriously reduced its strength. That did not imply wickedness on the part of the contractor, but rather carelessness on the part of the architect or engineer. The trouble was that the proportions 1 : 2 : 4, with too many people, stood for 2,000 lb. per square inch at twenty-eight days. Some mixtures of 1 : 2 : 4 would allow that strength at that age—most would not come nearer than 1,500 lb. Such a statement did not condemn concrete—it condemned the makers.

Loose Specifications.

The following case illustrated the trouble caused by a loose specification. The architect called for "concrete to be composed of six parts of stone and sand, both measured by loose volume to one part of Portland cement . . . by volume." The contractor was fortunate enough to find on the site a gravel of good quality, and asked the architect's permission to use it, which was readily granted. The contractor proceeded to mix six parts of the gravel with one of cement, when the architect stopped him, pointing out that the gravel should first be screened to remove the sand and then remixed in the proportions of two parts sand to four parts gravel. The contractor claimed he had a right to use six parts to one of cement. Neither side would give in, and the case went up for arbitration, when both admitted faults—the architect that his specification should have read one volume cement, two volumes sand, and four volumes stone; the contractor that he thought, when he was allowed to use the gravel, that six parts to one of cement was equal to four stone, two sand, and one cement. The lecturer went on to say that in the experiments all materials were dry before mixing, and the table showing the results which he submitted illustrated the following facts:—

(1) Stone concretes on the average contained 10 per cent. more cement than gravel concretes. It was therefore not fair to expect gravel concretes to be as strong as stone concretes. ("American Civil Engineer's Pocket Book" noted that gravel concretes at one year are 9 per cent. weaker than stone concretes.)

(2) The percentage of voids in gravel being smaller than in stone, less sand should be used: one and a-half parts sand (on the average) to four parts gravel would produce a concrete worked as easily as, if not more easily than, two sand to four stone.

(3) Gravels passed through and retained on screens as used for stone always had less voids; the popular idea was that they would be the same. It could be admitted that if stone could be "hand placed" into a receptacle, a very small percentage of voids would result. This indicated that stone concretes, unless they had considerable sand (two to four), would not be so reliable as gravel in the matter of density.

(4) Gravel concretes mixed 1 : 2 : 4 are 3 lb. per cubic foot lighter than stone concretes. Proper proportioning would easily make up this 3 lb., in spite of the fact that the specific gravity of gravel was only 2.51, as against 2.70 for stone.

Statements had been made, and tests devised to prove, that:—

(*a*) Reducing the percentage of voids to the absolute minimum possible, and filling these with cement, produced the strongest concrete.

(*b*) Any cement beyond that necessary to fill these voids was waste and did not increase the strength.

(*c*) Just as a carpenter used the minimum of glue in making a joint, so one should use a minimum of cement in making concrete.

Regarding (*a*), it was possible to reduce the percentage of voids to 10 by using a graded sand, but 10 per cent. of cement had to coat the surface of the remaining 90 per cent. Could this be the strongest possible concrete?

Regarding (*a*) and (*b*), a recent paper sought to prove that a mix of 1 : 2 : 4 was not stronger than one of 1 : 3 : 7. It was not at one month, but it was over 50 per cent. stronger at three months, and at a year would probably leave a greater gap. In the one-month test the 1 : 2 : 4 concrete contained more of, what was then, the weak material than did the 1 : 3 : 7, but at three months it began to assert its value, with the result stated. Such statements would suggest that neat cement in compression would not be so strong as a mixture of very strong stone and cement. In two tests a first-class neat cement cube gave 12,064 lb. per square inch at three months, another cube made of hard whinstone (probable crushing strength 20,000 lb. per square inch) 2½ parts, and the same cement as above to fill the voids, one part, stood only 7,300 lb. per square inch at eighteen months. It might be admitted, therefore, all other things being equal, the more cement the stronger the concrete. Gravel concrete had suffered for years, because for apparently equal quantities of cement it was not as strong as stone concrete. The whole trouble lay in the fact that the amount of cement was not based on the finished volume of concrete.

A Specification for Concrete.

Mr. Johnson gave what he described as a correct specification for concrete equal to average 1 : 2 : 4 concrete—*i.e.*, containing 20 per cent. by loose volume of dry cement equal to 14 per cent. wetted. "The concrete shall be composed of perfectly clean crushed stone or gravel passing the in. sieve and retained on the -in sieve (⅜-in. suggested); the particles of gravel shall have a least dimension of not less than one-half the greatest dimension, the stone a least dimension not less than one-third the greatest dimension, and no flakes that can be levered with a knife from the surface of any of the particles. Specific gravity not less than 2.5. The sand shall be thoroughly washed, and when dry shall pass the ⅜-in. sieve and be retained on the $\frac{1}{7}\frac{1}{8}$-in. sieve; the particles shall be as nearly spherical as those of the gravel mentioned above. Specific gravity not less than 2.5. The cement shall easily pass the minimum requirements of the British Standard Specifications of August 1910, when not less than 22 per cent. of water is used for neat cement specimens and not less than 8½ per cent. for mortar specimens. The proportions for mixing shall be determined on the principle that the minimum amount of sand consistent with easy working of the mass shall be introduced (not more than will give a ratio of 1 sand to 2 stone for stone concrete, or not more than will give a ratio of 1 sand to 2.4 for gravel concretes), and that the resultant thoroughly mixed concrete shall not contain less than 20 per cent. of cement by loose volume or 14 per cent. by wetted (22 per cent. water) volume. The weight per cubic ft. when wet shall not be less than 145 lb."

Mr. Johnson went on to state that his conclusions were as follows:—The 1 : 2 : 4 method of proportioning should be considered obsolete, since no two 1 : 2 : 4 concretes contain the same percentage of cement, neither

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does it allow the majority of materials to produce their best values. An actual test of the materials it is proposed to use should be made, introducing the percentage of cement required for the particular purpose the concrete is for and finding the ratio of small to large aggregate accurately by this means. Other things equal, the percentage of cement closely governs the strength. Other things equal, the larger the aggregate the stronger the concrete. Previous tests proved that washing the average aggregate carefully will allow 30-40 per cent. higher strength in a hand mix, but only about 15-25 per cent. in a machine mix. This is always excepting really dirty material. Using a mixer and giving 2-3 minutes for mixing will give a concrete, other things equal, about 50-75 per cent. stronger. For equal working consistency and equal cement gravel concrete is as strong as stone concrete. Gravel passing same screens as stone always has less voids than the stone. Fine sand concrete has smaller weight per cubic ft. than coarse sand concrete. Fine sand plus large aggregate (without cement) gives smaller volume than coarse. Fine sand plus large aggregate (with cement) gives larger volume than coarse. Fine sand concrete is easier worked than coarse sand concrete for equal amounts of sand. The finer the aggregate the more deleterious material and air it carries with it into the concrete. The finer the sand the less should be used. 30-40 per cent. higher strengths are obtained with 3.15-in. cubes than with 6-in. cubes. Small cubes are more uncertain and inconsistent in the strength values than larger cubes. In the future and in order that tests at various places shall be truly comparative, two things are required—(*a*) The percentage of cement in the concrete. (*b*) The strength of the cement in mortar tension or mortar compression.

In conclusion Mr. Johnson said he hoped the discussion would produce questions and opinions which would further add to any value his paper, describing heavy work, might have; and it was heavy work, since they handled upwards of five tons of concrete, and now had as much respect for a cubic foot of finished concrete as a quantity surveyor had for a cubic yard.

(To be continued.)

ROYAL INSTITUTE OF BRITISH ARCHITECTS

(Continued from last week.)

REPORT OF THE ART STANDING COMMITTEE.

OWING to the concentration of the energies of an ever-increasing proportion of the population of the country upon the prosecution of the war and the consequent suspension of architectural projects of all kinds, the matters that have come under the consideration of the Art Standing Committee during the last twelve months have been few in number and small in importance.

In the absence of Mr. Edward Warren (called abroad, as stated in the last Report of the Committee), the Chairmanship of the Committee has devolved upon Mr. H. Heathcote Statham, Mr. H. P. Burke Downing being the Honorary Secretary.

The Committee lament the loss of Mr. Philip E. Webb and Mr. A. Wyatt Papworth, killed in action, and they have been temporarily deprived of other members who have joined the Forces or have been occupied with other work connected with the war.

The Committee have held six meetings since their last Report.

Some observations of Mr. Lethaby on the occasion of the Presidential Address had early attention from the Committee, who recommended to the Council that steps should be taken with a view to the holding of such informal Conferences as were suggested by Mr. Lethaby for the exchange of views among members of the profession and others interested in architectural development on such matters as the increasing employment of building materials of modern invention, and the bearing of such materials upon design and construction. The Committee are glad to think that these suggestions have been fruitful and that interesting conferences have resulted.

Some few particular proposals came under the consideration of the Committee, but for various reasons have not called for action at the present time. One matter may be mentioned—viz., the proposal for the demolition of part of the Church of St. Alphege, London Wall, in the City of London, in connection with a scheme for the Union of the Benefice of St. Alphege with that of St. Mary Aldermanbury. In this case there seemed to the Committee, on a report made by Mr. H. H. Statham, that there was sufficient of architectural interest in the front towards Aldermanbury to justify a recommendation that if practicable it should be preserved in the erection of any new building on the site, and Mr. Statham, with the concurrence of the Committee, has made a representation to that effect to the Ecclesiastical Authority.

The Committee were able to arrange for an exhibition in the Common Room of the Institute of an interesting series of measured drawings and studies of Indian architecture made by Mr. E. C. Henriques, a Government of India Scholar in Architecture, illustrating the three principal styles of Saracenic work in India, and including some examples of Hindoo work at Rajputana.

REPORT OF THE LITERATURE STANDING COMMITTEE.

Since making their report last year the Literature Standing Committee have met five times to select books to be bought for the Library and to transact the business of administration.

The Joint Hon. Secretary, Mr. M. S. Briggs, is now serving in the Army in Egypt, and has therefore been unable to take part in any work of the Committee.

During the year the Committee have lost an old and honoured member, Mr. R. Phené Spiers, who died on October 3, 1916. Mr. Spiers was for many years a member of the Committee, and its Chairman from 1899 to 1911. His authoritative and wide knowledge of architectural history and literature was of the greatest value in all matters connected with the development of the Library. Mr. Spiers bequeathed a portion of his valuable collection of books on architectural subjects, two admirable water-colours and other drawings to the Library. Through the courtesy of Mr. Walter Spiers a small sub-committee was able to meet him and make the necessary selections.

Mr. Herbert Batsford, the architectural publisher, died on January 14 last. By his death the Committee and all who are interested in architecture have lost a valued helper.

The Council agreed to the Committee's recommendation, and five drawings by the late Mr. C. E. Mallows have been acquired for the Library.

The late Lieut. Francis Grissell, a young Associate who was killed in the war, bequeathed £500 to the Institute for the use of the Library. A portion of this sum has been placed to the credit of the Literature Committee for special purchases of books, and the remainder has been invested.

A portfolio of sketches, photographs, and cuttings from professional papers of executed and proposed buildings by the late Mr. W. H. Lynn, R.H.A., together with some letters, has been given to the Library by Miss Cooper, of Belfast, through the instrumentality of Mr. Robert M. Young. Sir Aston Webb contributed an interesting article on this collection to the "Journal" for February.

Mr. J. D. Crace (Hon. A.) has presented a volume and two portfolios of sketches and drawings, mostly in colour, of details of Italian colour decoration, as well as some charming sketches of English work. These drawings cover the work of practically half a century, and will form a most interesting and valuable addition to the Institute collection, especially as they include the originals of the illustrations in his book "The Art of Colour Decoration." It is proposed to exhibit the drawings in

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the Institute Galleries so that members may have an opportunity of appreciating the beauty of Mr. Crace's work.

Mr. Wigglesworth has given a complete set of Transactions of the Scottish Ecclesiological Society. Mr. Hilton Nash has presented an album of water-colour sketches of architectural and other subjects of which he is the artist. Mr. Gordon Hemm has given two portfolios of reproductions of his measured drawings of the old Town Hall at Manchester.

From Mr. George Scamell has been received a large and individual collection of photographs taken by himself, chiefly of English country churches in the home counties. An article on this collection is to appear in the "Journal." The photographs will make an interesting exhibition in the Institute Galleries when the necessary arrangements can be made.

As indicated in the Committee's last report, various exhibitions of drawings presented to the Library have been recently held in the East Gallery, representative selections being made from the work of Norman Shaw, William Burges, George Edmund Street, Eden Nesfield, and Philip Webb. The exhibitions aroused great interest among members, and were also much appreciated by outside visitors. Special articles have appeared in the "Journal" on the Burges drawings by Mr. R. A. Briggs (now deceased) and on the Street Drawings by Mr. Walter Millard.

REPORT OF THE PRACTICE STANDING COMMITTEE.

Ten meetings have been held since the date of the last Report.

The officers who were elected at the beginning of the session 1915-1916 have remained in office during the session 1916-1917, in accordance with a resolution of the Committee and with the general action of the Institute as to its honorary officials. They are Mr. Max Clarke, Chairman; Mr. Edward Greenop, Vice-Chairman; Messrs. Matt. Garbutt and Alan E. Munby, Hon. Secretaries.

Death of the Vice-Chairman.—As this report was in preparation the Committee received news of the death of the Vice-Chairman, Mr. Edwd. Greenop, and they desire to put on record here their high appreciation of the services he has for so long rendered to the Committee, first in the office of Honorary Secretary and recently in that of Vice-Chairman, as well as their sincere regret for his loss and their sympathy with his relatives.

The war has not caused any diminution in the amount of work with which the Committee has to deal. Several members have made inquiries upon legal points arising out of conditions created by the political situation, and the Committee have been obliged to point out again that purely legal questions are not within their province. The following are some of the chief matters dealt with:—

Experts' Services and Architects' Charges in relation thereto.—The Sub-Committee appointed in July 1915 to consider this very important matter has concluded its work, and a report has been submitted to the Committee.

Special Sub-Committees.—The Professional Conduct Sub-Committee and the Schedule of Charges Sub-Committee have been continued, and the former has disposed of several cases referred to it.

Clerks of Works.—Two questions relating to this official have been considered. The first was as to the effect upon the responsibility of the architect of a client's refusal to appoint a clerk of works when such an appointment was recommended by the architect; upon this reports have been made to the Council. The second was raised by trade representatives, and had reference to the limitation of the duties of the clerk of works in connection with measuring up works; reports have been made to the Council upon this also.

Professional Advertising.—There have been some further complaints upon this matter, the most important of which was made by the South Wales Institute of Architects; reports have been made to the Council upon it.

Architectural Practice in India.—Through complaints as to alleged irregularities the Committee became aware that architects in India hardly ever hold the independent position which is theirs in England, private practice being almost unknown. The Committtee reported to the Council as to this. At a later period of the session it was reported to the Committee that measures of investigation and alteration in the Indian Public Works Department have been foreshadowed in a speech by the Viceroy, and the Committee thereupon made further recommendations to the Council as to the position of the practice of architecture in India.

Deptford Borough Council and R.I.B.A. Conditions of Contract.—A complaint was received from this Council that the R.I.B.A. conditions of contract were so drawn up as to make it possible for the successful party in an arbitration case to be ordered to pay the costs of the unsuccessful party. It was explained to the Deptford Council that the possibility referred to arose under the Arbitration Act, which controlled procedure under the R.I.B.A. conditions of contract.

Appointment of Arbitrator.—The form of appointment of an arbitrator, applicable to disputes not coming under the R.I.B.A. conditions of contract has been reconsidered by the Committee, after submission to the Institute's solicitors and finally approved.

Payments on account of Contract Sums.—A suggestion was received from a trade society that the amount of payment as work proceeds should be in all cases 90 per cent. and that the retention money between completion and the end of the agreed maintenance period should bear interest at 5 per cent. per annum. The Committee expressed the view that the amount for payment as work proceeds should be left open for arrangement between the parties, as at present, and that they did not agree to the desirability of paying interest on the retention money.

Conditions of Contract.—During the session various points have been raised which have a bearing upon the work of the Special Committee now revising the conditions of contract, and these points have been referred to that Committee.

London Building Acts.—A report by the Art Standing Committee, containing suggestions for amendments to the existing Acts has been sent by the Council to the Committee for consideration. After careful discussion by a sub-committee a report has been made to the Council.

Members' Queries.—The Committee continue to receive questions that are not accompanied by information sufficient to enable answers to be given; and they would remind members and others that when one party makes a statement from which another interested party may dissent the Committee invariably observe the necessary rule of hearing both sides of the case. One communication from a member may be of more general interest than most. It had reference to a case in which a client contended that his architect's charges for work recently done should be based upon what the builder's prices would have been before the war.

REPORT OF THE SCIENCE STANDING COMMITTEE.

Since the date of the previous report four meetings of the Committee have been held, with an average attendance of seven members. The chairman, Mr. Bernard Dicksee, and the vice-chairman, Mr. W. E. Vernon Crompton, having acted for the latter part of the previous session, were re-elected, and Mr. A. O. Collard and Mr. Digby L. Solomon were elected joint hon. secretaries. In recognition of his services to the Committee Mr. Hornblower was invited to become a visiting member, as the by-laws do not provide for the co-option of members by a standing committee.

Protection of Iron Drain-pipes.—In 1905 Messrs. Holland & Hannen laid some protected iron drain-pipes at their own expense, under the supervision of Messrs. Lewis Solomon, Max Clarke and Wm. Dunn. In 1909 Mr. Matt. Garbutt reported that the pipes were then practically unaffected. In consequence of an inquiry

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recently received from Mr. Searles-Wood on the subject, it was decided by the Committee to let the matter rest for another twelve months owing to labour shortage.

Sub-Committee on Scientific and Industrial Research.—The appointment of this sub-committee late in 1915, together with a brief summary of its work up till April 1916, were mentioned in last year's report. Since then the sub-committee has been strengthened by the addition of further members, and its work has become of such importance that it has been appointed by the Council a full committee, responsible direct to the Council, and with authority to represent the views of the Institute before the Privy Council Committee on Scientific and Industrial Research. A report of its proceedings will be found in another part of the Council's annual report.

Shell-discard Steel.—The Ministry of Munitions having made known the feasibility of using shell-discard steel in substitution for mild steel, the use of which, without licence, has been prohibited, the Committee have made some inquiries on the subject of its qualities for building construction, as compared with mild steel. Particulars have been forwarded to the Council, with a view, if thought fit, to representations being made in the proper quarters to secure distinctive markings on all shell-discard steel when intended for constructional purposes.

Further Symbols and Abbreviations.—A communication has been received from the Institution of Heating and Ventilating Engineers advocating the adoption of certain symbols and abbreviations in addition to those already in general use. The Committee regard these suggestions as part only of a large subject and think they should be submitted to various other scientific societies, to prevent the risk of adoption of any sign that may already be in use with another meaning.

The Metric System.—A letter from an architect practising in Paris, addressed to the President, asking the R.I.B.A. to advocate the adoption of the metric system in England, has been considered by the Committee, particularly with regard to the effect such a change would have upon the work of architects.

The Committee have been consulted by various correspondents on such matters as the decay of artificial stonework and as to underground water dams, and suitable replies have been sent in all cases. The sub-committees on "Belfries and Vibrations" and on "Defective Roofing Tiles" have been reappointed.

(To be concluded.)

THE OLD TOWERS OF CORNWALL

By E. H. SEDDING, F.R.I.B.A.

(Continued from page 231.)

WE will now take a few of the widely-different towers, chiefly found in the centre and west of the county, such as the heavily angle-buttressed towers at St. Neot's or North Petherwyn, the width of these buttresses being as much as 5 feet. It was probably intended that these towers should have spires. Another example of a massive tower is that at St. Michael Penkevil, which was surmounted half a century ago by a spire.* Unfortunately, it was found necessary to rebuild this tower, but it appears certain that the lower portions of the walls were allowed to remain. In the chamber under the belfry is a stone altar built into an arched recess with a piscina on the right of fourteenth-century workmanship. This was evidently a chapel, the cell of one of the four resident priests. At Inethwick there is a priest's chamber attached to the tower, but in the writer's judgment it is not in its original state.

At St. Wenn the square tower is of two stages only. Its elaborate plinths, quatrefoil tracery and cresting are very similar to the work found at the base of the towers of Probus or Fowey. This is an unfinished tower, but according to tradition the upper stage or stages were destroyed in a storm.

The towers of Otterham and Treneglos may be termed moorland structures, reminding us of what may be seen on Dartmoor. There is another kind as, for example, at St. Mewan, where the pinnacles are unlike those found in Cornwall.

Spires are uncommon in Cornwall. The spire which surmounts the thirteenth-century tower of Lostwithiel Church is not only without rival in the county, but it has no parallel, as far as the writer's knowledge goes, in the British Isles. It may be called a "Lantern" spire. Its eight sides are ornamented with arched open tracery of two lights strengthened by a "band" of beautiful workmanship. Each side is crowned with an acutely pointed gable. The design is distinctly French, like the church. The date is about 1340.*

St. Keverne has a stone spire of fifteenth-century workmanship, and its sides are relieved by open quatrefoils. The massive tower on which it stands is unbuttressed. The three spires on the north coast are landmarks.† St. Minver was reconstructed during the latter half of the last century, when two different kinds of stone seem to have been used. Probably the old stones were re-used as far as they would go. It is curious to find that the upper part is covered more or less with a lichen growth.

St. Cubert shared the same fate during the same storm which injured the steeple of Lostwithiel, and was rebuilt under the direction of the same architect. The leaning spire of St. Enodoc is more interesting, as it is original and stands on its Norman base. The Norman builders, who constructed their diminutive tower with walls about 3 feet thick, in all probability did not intend the additional weight of a spire.‡

The spires of St. Keverne, St. Gerrans, and Rame are landmarks on the south coast; those of St. Sheviock and Menheniot are inland steeples, so that of the nine spires of Cornwall, six are of service to the mariner. There is a tradition that spires were erected to mark the memory of a very ancient heathen site.

Another interesting type of tower which had its origin in early days is that which was built on arched legs. The earliest example in Cornwall will be found at St. Germans, which is of peculiar interest because the whole west front, including the towers, is of Norman date, where the great central portal occupies so prominent a place, and is formed of a series of flattened semi-circular arched rings, whereas the internal arches of the towers are pointed. Although both of the Norman lean-to aisles have disappeared, the raking weatherings on the east faces of both towers, against which the Norman roofs abutted, are "in situ." The incorporation of the towers within the interior of the church was probably the motive for erecting the towers in such a way, namely, on arched legs. At St. Germans the 6 feet thick walls are arched on two sides, two communicate with the nave and two with the aisles, but in the later example at Lanteglos-Fowey, the western tower is thrown into the church by means of three archways. This treatment follows as a matter of course where there is only a single west tower, if the floor space occupied by the tower is to be included in the area of the church. In the case of the thirteenth-century example at Lostwithiel, the north and south arches seem never to have been incorporated in the church, as the proximity of the street would probably have forbidden this course. Here, as at St. Columb Major, the north and south arches were intended to be left open, and do duty as western porches. At St. Keverne all three archways communicate with the church. In the still later granite tower of St. Blazey, all three arches open into the church, but at

* This was removed before the restoration under G. E. Street.

* The spire was struck by lightning about the middle of last century, and restored by G. E. Street, who, according to tradition, shortened it a few feet.

† Several coastal towers are Government landmarks in Cornwall. When Illogan Church was reconstructed on a fresh site, the tower was not allowed by Trinity House to be removed.

‡ The inside measurement of the base of the tower is barely 5 feet.

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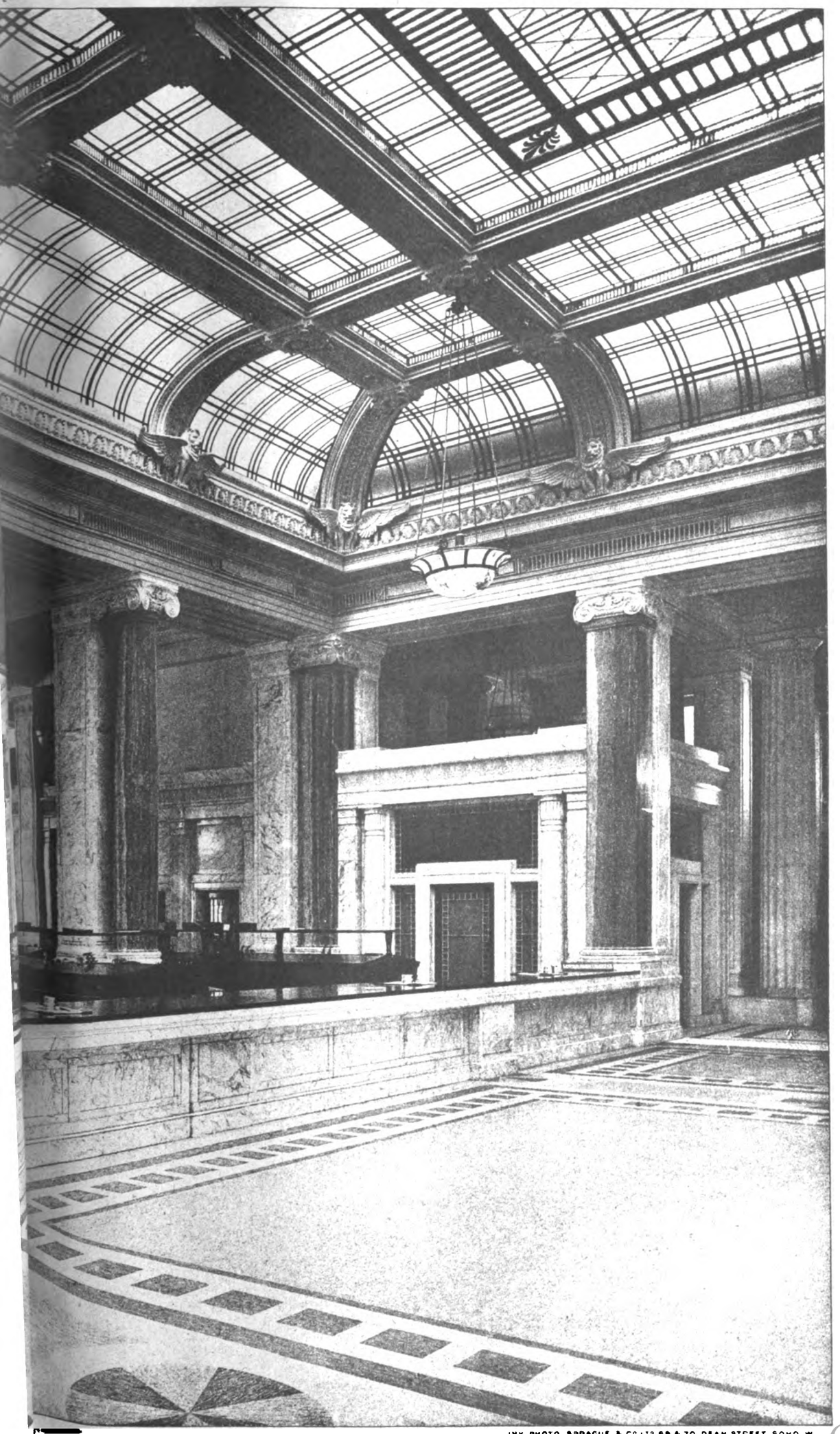


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South Side of General Office.

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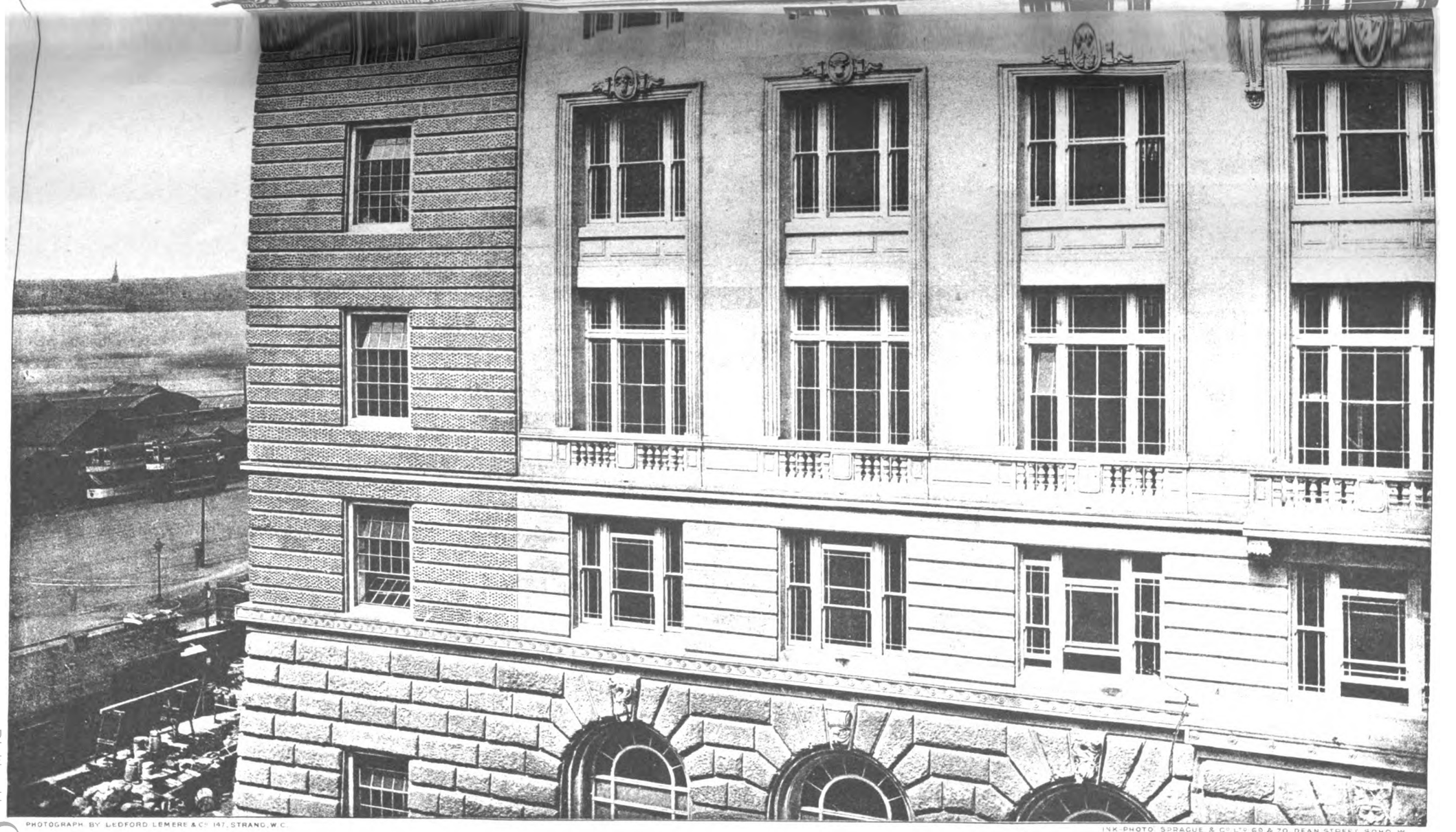
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THE NEW CUNARD BUILDING, LIVERPOOL. DETAIL OF SOUTH-WEST FAÇADE.

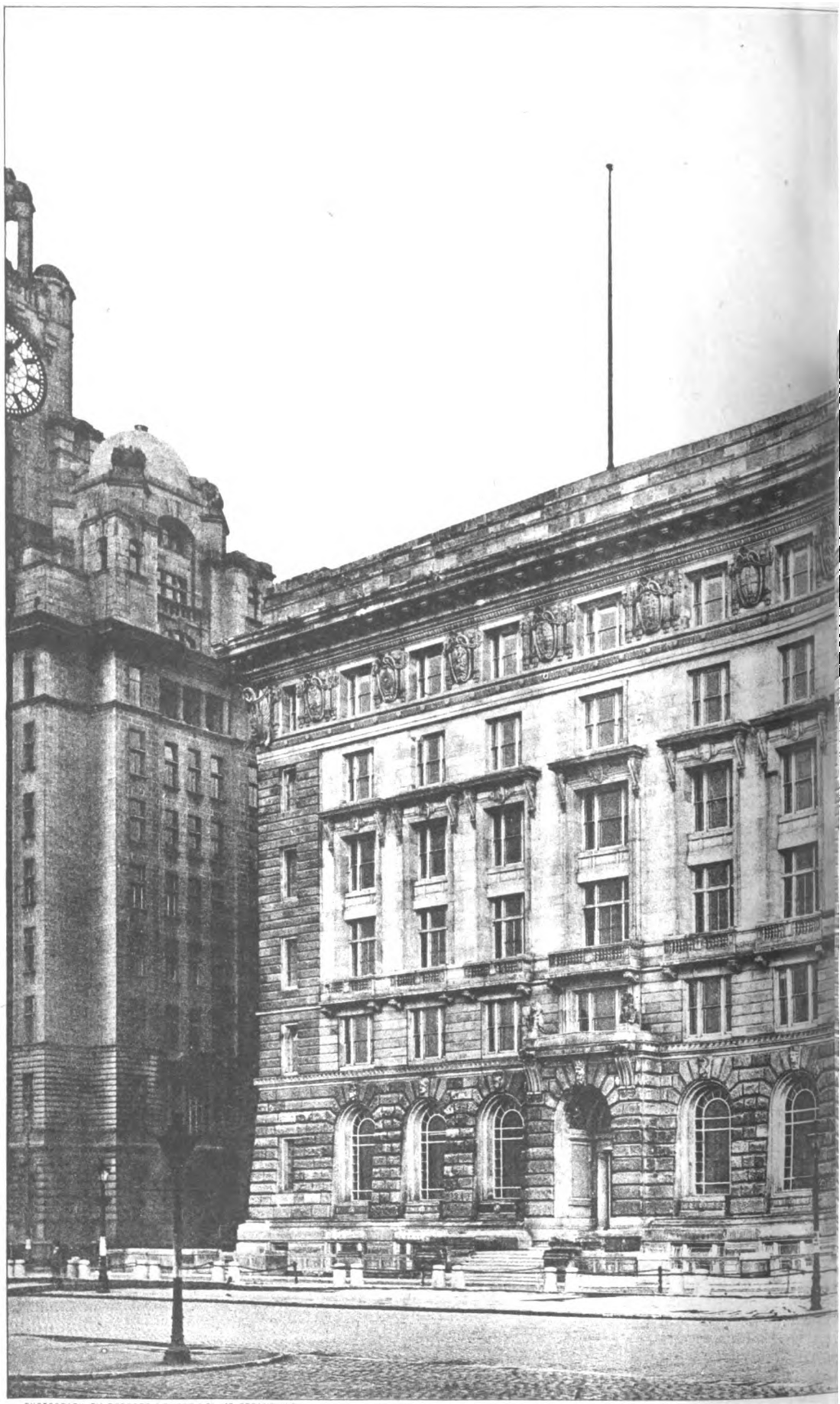
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St. Stephen's-by-Saltash, where the tower is at the west end of the north aisle, the treatment is the same as at St. Germans.

THE EFFECT OF WAR CONDITIONS UPON THE PROPERTY MARKET (URBAN).

By J. G. HEAD, F.S.I.

(Concluded from last week.)

SUBSEQUENT to the reading of the paper by Mr. J. G. Head, F.S.I., at the Surveyors' Institution, which we have reported in full in recent issues, the following discussion took place:—

Mr. J. D. Wallis (Lancashire) said there had undoubtedly been a great decrease in the value of the business done, but they must be careful not to confuse that with decrease in values. The decline in values had, as Mr. Head pointed out, followed the drop in the money market, although not to such an extent as the fall in gilt-edged securities. No doubt there were many properties which it would be very difficult, if not impossible, to realise at the present time. Simply on account of the money not being available, many central properties in the main thoroughfares of the principal towns were unsaleable, and if they had to be valued on the basis of a forced sale to-day it would be necessary to allow a considerable depreciation. But notwithstanding that, for his part he had no doubt as to the future of this central property as long as it was held. He had little doubt it would recover and maintain its full value as time went on, and as the prosperity and trade of the country increased, particularly having regard to the increased cost of building. He thought one effect of war conditions should be to bring mortgages into greater favour. It was reasonable to assume that the cost of building would remain at a higher level for many years to come. The problem of housing was too great to be tackled by private individuals, and could only be properly dealt with by the nation with national funds, subject to it being supplemented as far as possible by the development to the greatest extent of private enterprise.

Mr. H. M. Stanley (London) said one of the most vital questions to-day was that of the housing the working classes. It would have to be done by State control, but he was afraid it would have to be done through municipalities and local councils. Private enterprise would not be able to do much for some years to come, not until the property market again got into its normal condition, and no one could say when that would be and when money would be available for lending at ordinary rates. He found that the confidence of the big financiers connected with banks and insurance offices was so great in this London of ours that they were largely taking advantage of the conditions which now prevailed to buy additional property, on purpose to add to their existing properties whenever possible. A very large amount of business had been done in London in the last three years in that particular line, which, of course, had not been made public, and did not appear in any of the records of the Auction Mart. He believed that property would in the course of time come round. There were a great many people who liked to see what they had got—they liked to look at their houses, and so on.

Mr. E. W. Rushworth said one of the best things they could do to assist property was to endeavour to maintain a market for it, and to prevent it falling into a condition of stagnation, which was so deplorable when there was a fall in prices. The first thing they had got to do in order to maintain a market was to at once admit and recognise the extent of the fall. If, on the other hand, they would not admit or only admit it was about half what it really was, they got to a state of affairs when the views of buyers and sellers were so wide apart that there was no market at all, and the idea got abroad that certain properties were absolutely unsaleable, which in a great many cases merely meant they were unsaleable at a price at which they were not wanted. He was convinced that if the general body of owners even had low prices, it was much better there should be a market in which property could be freely dealt with, and if they got a market of that sort they would find that the prices had a tendency to improve. He was not suggesting that any owner should sell his property for less than it was worth. He was not suggesting, indeed, that any owner should sell his property at all unless he wanted to, but if an owner wanted to sell it, he (Mr. Rushworth) maintained it was much better for him that he should be able to take it into a market where it could be dealt with, and where he could look forward to some little competition, even though low prices were ruling.

Mr. Henry Lovegrove uttered a scathing denunciation of the stupid utterances of some speakers on public platforms, who, even before injurious legislation was enacted, did much injury to property owners, and who conveyed the impression that the owners consisted solely of the wealthy few. They knew scores of poor men who had bought property through building societies, and that middle-class men had also invested considerably. After the war started it became very difficult to obtain money on mortgage, and in a short time the speculative builder disappeared from the scene. Last year showed a great decrease in the number of houses erected. In his district, one of the largest, there had not been a house built by a private individual for seven or ten years. He knew several instances where well-built property could be purchased at about one-fifth or one-sixth of the original cost. Depreciation in shop property was very marked in some leading streets, where there were numbers empty. In his opinion two things were essential to attempt to restore the confidence of the investing public. One was the immediate repeal of the stupid Finance Act of 1909-10, and the placing on the Statute-book of an Act providing for leasehold enfranchisement. The thousands of building operatives in this country should insist upon that being done.

Mr. A. L. Ryde said he thought it was quite impracticable to get a larger amount lent on mortgage than there was at present.

In acknowledging a vote of thanks for his paper, Mr. Head emphasised his complaint that the action of the Finance Act had damaged the credit of the investment. It was the idea that got abroad that landed investments were to be attacked as a whole, and for that reason he thought something should be done if the credit of the landed industry was to be restored from the damage that was inflicted on it by the passing of the Finance Act.

ART IN LONDON.

ROYAL SOCIETY OF PAINTERS IN WATER COLOURS.

IT is pleasant, even in the midst of a devastating war, to be able to turn now and again from thoughts of what is taking place across the narrow strip of Channel and further away and to satisfy art-loving proclivities by the inspection of pictures which, with rare exceptions, have no relation to the world-cataclysm, so far at least as the latest exhibition of the Water Colour Society is concerned. There is here a wealth of good work, the greater portion being naturally contributed by the elder brethren.

In a necessarily brief survey, what are the pictures that must be regarded as in the first category of excellence? Mr. Arthur Hopkins' "Mowing the Orchard," "A Drink by the Roadside," "A Fresh Morning on the Cornish Coast," and "The Passing of the Shower" are certainly to be included, the last named being especially noteworthy; Mr. Thorne-Waite, too, in "The Sussex Downs" and "The Downs near Lewes," exhibits his powers of identifying himself with his surroundings. The President, Mr. Alfred Parsons, R.A., surpasses these artists in one of his contributions, "The Snow," where it is scarcely affectation to say the realism

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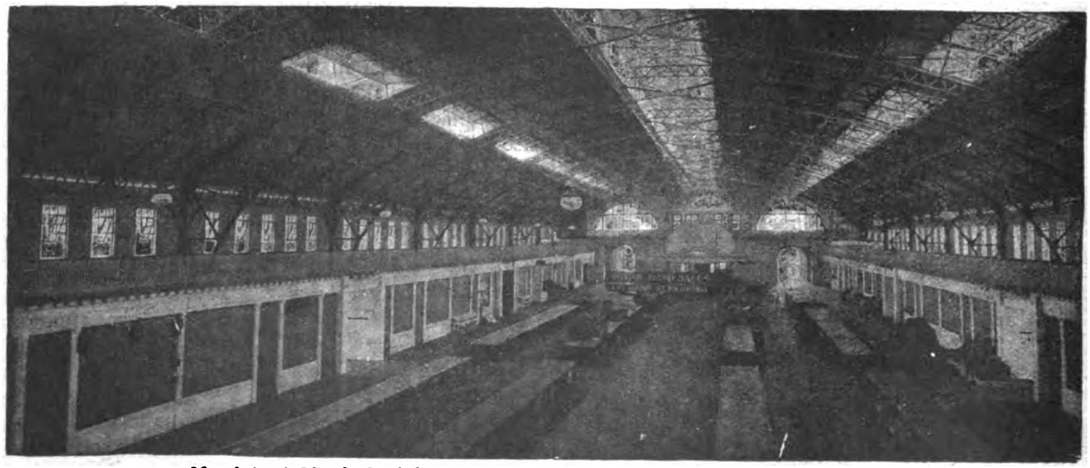
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of Winter's carpet seems to make us tread its pure expanse and feel against our cheek the bracing crispness of the wintry air. But the President is less successful in others of his contributions, such as "May Tulips" (altogether too garish and insistent) and "Peach and Plum Blossom." In the front rank we must also place Mr. Matthew Hale's "Sunrise" (a poem in blue-greys), Mr. Cuthbert Rigby's "Rocky Buttress of the Langdale Pikes," Mr. Eyre Walker's "Winter Daybreak" and "Winter in the Cotswolds," and Mr. Robert Allan's "Crossing the Ford"; the breadth, atmosphere, tonality and composition of the last named are notable features, and it is a matter of some wonder that the same artist should be responsible for such a work as "Siena." Mrs. Allingham and Mr. Charles Gregory have examples of their characteristically delicate art, but we should welcome a less persistent "marking-time"; if Mr. Gregory would, on occasions, half close the eyes in viewing his subject it would be beneficial, but we have no intent of depreciating his really masterly productions. Mr. Dollman's "The Leopard Girl" is thoroughly clever and well staged. Mr. Albert Goodwin is at his best in "Westminster." Some good examples of the art of the late Reginald Barratt are exhibited, and Mr. H. Henshall's "The Young Mother" is most attractive. Mr. Bulleid is of the school of Alma-Tadema, devoted to classic treatment and to a scheme of colour and choice of subject that the master himself did not surpass. Mr. Napier Hemy is less successful than usual, but Sir E. Waterlow, R.A., still pursues the even tenor of his way, producing masterly studies with surprising energy.

Of some we cannot speak with favour. Mr. Sims, R.A., seems to revel in supportive subjects; they are too often tiring and uninspiring. Mrs. Laura Knight's work is distinctly poor in technique and unattractive otherwise in her three exhibits; Miss Swan's "Dawn at Mürren" is cruelly hard and unsatisfying. Mr. Clausen, R.A., is apt to be daubish in his technique; nor is Mr. Lamorna Birch to be congratulated.

Much good and less of indifferent work we are compelled to pass over unnoticed, but the exhibition as a whole well sustains the reputation handed on by its predecessors.

BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders, the address is, as a rule, local.)

ENGLAND.

DERBYSHIRE.

Chesterfield.—Shop, Derby Road, for the Bryan Donkin Co.

Workshop, &c., for the Chesterfield Tube Co.

DEVON.

Newton Abbot.—"Keyberry House," Forde Park: addition for Dr. Haydon.

Plymouth.—Garage, Princes Street: extension for Mr. W. Cooper.

No. 18 Cobourg Street: addition for Mr. G. Baker.

DURHAM.

West Hartlepool.—No. 61 Alma Street: alteration for Mr. F. Watt.

KENT.

Faversham.—R.C. church: additions.

Maidstone.—Garage, Queen's Avenue, for Mr. H. G. Cannon.

No. 131 Tonbridge Road: addition.

LANCASHIRE.

Blackpool.—Whitegate Drive: additions for the West Lancashire Co-operative Convalescent Homes Association.

Two houses, Hawes Side Lane, for Mr. J. Boardman.

Workshop, Bloomfield Road, for Mr. S. Smith.

Workshop, Gorton Street, for Mr. E. Shepherd.

Hesketh Bank.—Two bungalows, Hundred End, for Messrs. W. & C. Ealough.

Leigh.—R.C. Church school, Plank Lane: proposed alterations and extensions.

Manchester.—Wardley Mills, Walkden: extensions for Messrs. Burgess, Ledward & Co., Ltd.

St. Helens.—Parish Church, Church Street: re-building.

Scarisbrick.—Mission Church and Hall, Bescar Lane, for the Rev. W. S. Mather.

MIDDLESEX.

Isleworth.—Shop, Beck's Wharf, for Mr. W. A. Lewis.

Lower Edmonton.—Proposed Baptist Memorial Church (£1,000).

MONMOUTHSHIRE.

Tredegar.—Proposed Memorial Church, St. Thomas, Sirhowy.

NORFOLK.

Great Yarmouth.—Shop, Regent Road, for Mr. C. Pownall.

NORTHUMBERLAND.

Newcastle-on-Tyne.—Proposed depôt, &c., for the Co-operative Wholesale Society.

STAFFORDSHIRE.

Tamworth.—House, Dosthill, for Mr. Walter Bird.

Walsall.—Factory, Bloxwich Road, Leamore, for Messrs. Nicholson & Lord.

SURREY.

Barnes.—No. 266 Upper Richmond Road, East Sheen: alterations for Mr. E. Hunt.

WARWICKSHIRE.

Bedworth.—House and shop, Coventry Road: additions for Mr. W. Shortridge.

Coventry.—P. M. Church, Heath Road, Stoke.

Two houses, Crescent Avenue, Stoke. Mr. F. Burton, builder, Coombe Street, Stoke.

Two houses, Binley Road, Stoke, for Mr. F. Smith.

Two houses, Lythall's Lane.

YORKSHIRE.

Castleford.—St. Michael's Church: proposed Institute.

St. Paul's Church, Glass Houghton: proposed extension.

Huddersfield.—War Hospital: alterations (£5,000).

Hoyland.—St. Andrew's Church: proposed Parsonage.

South Kirkby.—Church, Mill Lane, for the Rev. A. H. Walker.

Middlesbrough.—Bakery, Feversham Street: conversion into Girls' Institute.

Sheffield.—Warren Vale Farm, Wadsley: additions for Mr. W. Coopland.

Nos. 351 and 353 Attercliffe Common: alterations for G. S. Young's estate.

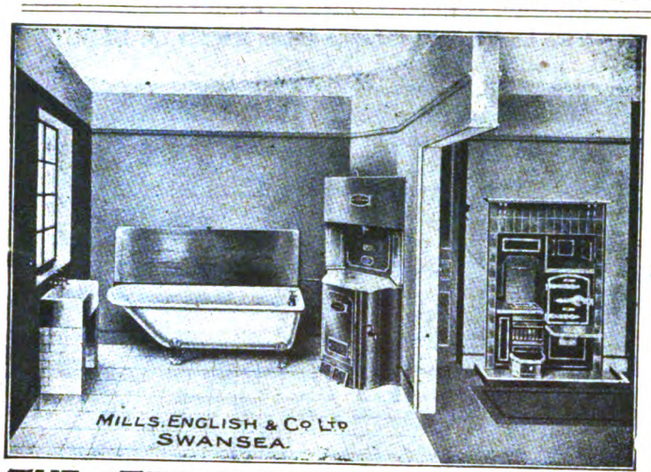
Foundry, White Croft: additions for the Sheffield Flatware Co.

IRELAND.

Dublin.—No. 9 Cathedral Street: rebuilding. Messrs. McDonnell & Reid, architects. Messrs. H. & J. Martin, Ltd., contractors, Grand Canal Street.

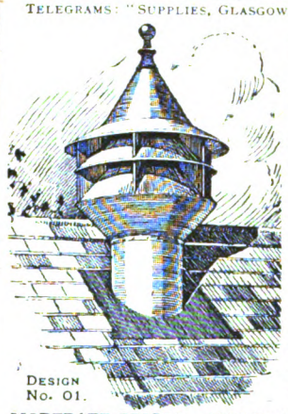
SECOND-LIEUTENANT J. L. WARRY, A.R.I.B.A., of the L.C.C. architect's department, and who was serving with the Sherwood Foresters, has been killed at the Front; he was the second son of Mr. W. G. K. Warry, of Wood Green, N. His C.O., in making known his death, states: "He was a brave man if ever there was one. If you could have seen the anxious way in which the men crowded round his stretcher you would have realised how they loved him. Had he lived I should have sent in his name to-day for promotion as captain."

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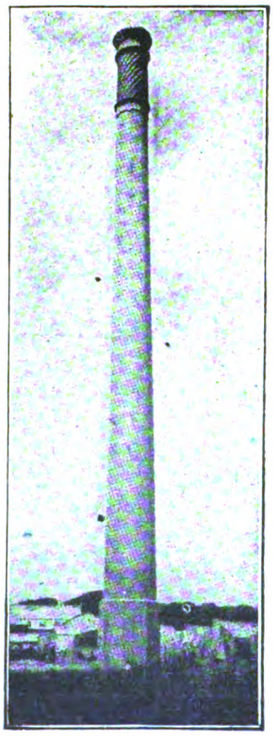
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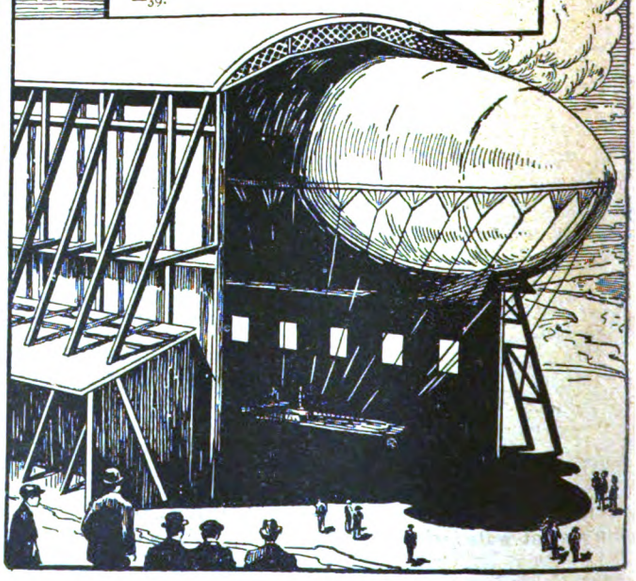
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FORTHCOMING EVENTS.

Thursday, May 24.

Aeronautical Institution of Great Britain, at the Central Hall, Westminster: Paper entitled "The Testing of Materials for Aeronautical Construction," by Mr. Edgar A. Allcut, M.Sc., A.M.Inst.C.E., A.M.I.Mech.E., at 8 P.M.

Saturday, May 26.

Edinburgh Architectural Association: Visit to Riccarton House, Currie.

Friday, June 1.

Town Planning Institute: Paper entitled "Draft Act, with respect to Planning and Regulating the Use and Development of Land for Building Purposes in Cities, Towns, and Rural Municipalities in Canada," by Mr. Thomas Adams, F.S.I., at 6 P.M.

Monday, June 4.

Royal Institute of British Architects: General Meeting.

The Surveyors' Institution: Annual General Meeting and Distribution of Prizes, at 5.0 P.M.

Wednesday, June 6.

Royal Archæological Institute:

Saturday, June 9.

Edinburgh Architectural Association: Visit to Inveresk.

ARCHITECTURE AT THE ROYAL ACADEMY.—II.

THE ecclesiastical group this year is placed on the east wall, the central position being allotted to "Completion of the Western Towers, St. Mary's Cathedral, Edinburgh" (1,346), by Mr. C. M. Oldrid Scott. The completion of Sir Gilbert Scott's design is a matter of satisfaction and congratulation. Above this drawing is hung "Church: Medall, India" (1,345), by Messrs. Bradshaw, Gass & Hope, a fine design with upstanding western tower of the modern type initiated by the architect of Liverpool Cathedral. Mr. Giles Gilbert Scott, by the way, is not represented at the Academy this year.

Mr. G. H. Fellowes Prynne shows two of the rood screens in which his soul delighteth. Both are wisely recorded in photographs, for the mass of intricate detail is such that no draughtsman would have the patience to make show drawings of these subjects without suppression. "Wrought Iron and Bronze Rood Screen, Christ Church, Epsom" (1,343), is a fine piece of metal-work in which the designer must have fairly revelled. "New Rood Screen and Restored Chancel, St. Columb's Church, Cornwall (1,353), is an almost equally intricate piece of detail in wood as regards the screen, based upon the latest phase of English Perpendicular of the eastern counties type. The roof of the restored chancel shows some well-designed, massive principals which contrast well with the delicacy of the screen. Both works are fine examples of modern ecclesiastical fittings.

"St. Barnabas Church, Mitcham, Surrey: exterior" (1,337), is a photograph from the executed work of one of Mr. H. P. Burke Downing's very satisfactory suburban churches which has already been illustrated on the Academy walls by a drawing. In "The Founder's Tomb, Washington Cathedral, U.S.A." (1,332), Mr. William D. Caröe has an opportunity for the display of vivid imagination characteristic of his work; in this case the nature of the subject has obviated any temptation to eccentricity. The placing of the tomb with one end against a wall justifies the somewhat unusual treatment of a qua-reredos as part of the composition, which is quite justifiable and entirely satisfactory. Although but a minor accessory, the work is one of the best things Mr. Caröe has done. Whereas this design is shown in a water-colour drawing, Mr. Caröe's second piece of church work, "Lady Chapel: altar and reredos, All Saints, Gresford" (1,358), is a touched-up photograph, and shows a stone altar with wood triptych for the reredos, both characterised by individuality, not exceeding reasonability.

A nice water-colour drawing by Mr. Gascoyne shows Mr. Percy B. Freeman's "Design for a School Chapel, Bognor" (1,362), a quite correct piece of Decorated work, reminiscent of Temple Balsall. Mr. J. E. Dixon Spain's "Proposed Church at Hendon" (1,363), is an interior, delineated in a monochrome wash drawing, treated with semi-circular arches of square section on slightly chamfered square piers set diagonally, thus affording a chance for a bit of juggling detail at their juncture. The roof has a segmental barrel ceiling with tie beams and king posts. Austerity is the keynote of the internal treatment.

Mr. Temple Moore is this year represented exclusively by photographs of interiors. "Interior of Chapel, St. Peter's Church, Barnsley" (1,335), and "St. Peter's Church, Barnsley: interior, looking east" (1,336), prove the attainment of excellent effect, the detail of the chapel being especially delightful. "St. Wilfrid's, Harrogate: four interior views" (1,360), show the approach to completion, with some scaffolding still in position, of this very fine church, in Early English type of detail, with nave arcade, triforium and clerestory and a wealth of clever and charming vaulting. "Proposed Church" (1,333), by Mr. J. Hatchard Smith, is a not very impressive water-colour interior of which the main features are a nave arcade on capless piers and a pointed barrel ceiling.

Mr. Arnold Mitchell appears this year as the architect of two modest buildings of similar purport though of different treatment. "Parish Hall, Holme-Lacy: exterior" (1,344), and "St. Mary's Church Room, East Grinstead" (1,354). The former is an essay in thatch and half timber on a stone plinth, with carved bargeboards and an oriel window. The latter is of later type, in plaster and red brick, with a semi-circular arched window. Both have big roofs and gables on comparatively low walls, and are delineated in pen-and-ink perspectives. "St. Barnabas Mission Church, Shacklewell, London: interior, looking east" (1,356), is a photograph in sepia tint of Professor Charles H. Reilly's attempt at a cheap church in stock brick and reinforced concrete, impressive in its severity, if somewhat gloomy from its unlit semi-circular barrel vault.

"Choir Screens, Southwark Cathedral" (1,357), is a photograph of Mr. Charles J. Blomfield's work in the screens behind the stalls filling the arches of the choir arcade, quite satisfactory without undue elaboration. Good, unostentatious work is shown in two photographs of "St. Matthew's Church, Northowram: interior views" (1,339), by the late Graham Nicholas and Joseph F. Walsh, where simply moulded nave arcade arches on plain octagonal piers carry a low clerestory with two-light, square-headed traceried windows in pairs, the major lighting coming from three-light aisle windows with Perpendicular tracery.

Mr. F. C. Eden's "Reredos and Organ Gallery, Elham Church" (1,340), are shown in two photographs of excellent Renaissance detail in woodwork. In one frame Mr. Arthur Young exhibits two photographs of "Lych Gate, Parish Church, Bexhill, and New Roman

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Catholic Church of St. Mary Magdalene, Bexhill" (1,342). St. Mary Magdalene shows an aisleless church with central tower and transepts of slight projection, a quite admirable conception. The Lych Gate is, as it should be, simple and yet pleasing with its gable ends on half-hipped roof.

Mr. Cecil G. Hare's church work consists of two water-colour drawings in geometrical elevation of his designs for "Alabaster Reredos for Chapel of Yoxall Church, Staffs" (1,350), and "Stone Reredos for Esclusham Church, Wrexham" (1,352), both of which, with their canopy work, small-scale tracery and carving, will undoubtedly look very much better in future photographs when carried into execution. Mr. W. Samuel Weatherley's "Design for Rood Screen, St. Stephen's Church, Norbury, S.W." (1,361), is shown by an elevation in pencil, and appears to have a rather curious plan, with quasi-octagonal wings projecting from the line of a recessed centre rom the various angles of which spring rib and panel fan vaults to a straight-lined rood beam. It will be a rare job for the setting-out skill of the executant, and we are a little doubtful as to the pleasantness of the varied planes of the severies.

NOTES AND COMMENTS.

THE National Housing policy, of which we wrote in "The Architect" of April 27, has been put before Lord Rhondda and other chiefs of the Local Government Board by a deputation from the National Housing and Town Planning Council, which was sympathetically received last week. At the interview Lord Rhondda said he regarded the question as of great importance, and was pleased to receive from the deputation information which they had collected from so many industries in various parts of the country as to the need of more adequate working class housing accommodation. He would give the matter his best attention, and would like to have the views of the deputation as to what they thought the Government should do in the way of financial assistance. The sum of £20,000,000 was mentioned in the memorandum sent in. Had any estimate been formed of the number of houses required?

Mr. Shawcross said it was estimated that to overtake the lack of building during the war, and to clear away all slum properties, it would be necessary to build some 160,000 houses a year during the twenty years following the war to provide healthy and sanitary houses for the working classes.

Lord Rhondda said he presumed the new houses would be required before the slums were dealt with.

The Secretary for Scotland suggested that the memorandum which had been placed before Lord Rhondda should also be sent to the Scottish Housing Committee for their consideration. He thought that English and Scottish bodies might help each other in some way that would bring about a more perfect scheme. The Royal Commission in Scotland was still sitting, and he did not propose to take any steps until their report was in his hands, but he greatly appreciated the valuable information which the present deputation had collected.

Mr. Hayes Fisher, Parliamentary Secretary to the Local Government Board, said it had been intimated that after the war there would be a shortage of some 500,000 houses. He thought the Government could give the best help by financial assistance, partly in the form of a free grant of money and partly by providing for a cheap rate of money.

A useful criticism on national housing has been advanced by Mr. Joseph Clarkson, secretary of the New Cities Society, who writes to the "Manchester Guardian" as follows:—The deputation from the National Housing and Town Planning Council to Lord Rhondda urged the need of building houses for the working classes, but before any of these are built the following points should be carefully considered:—(1) The number permissible per acre (ten should be the maximum); (2) the quality of air by which they would be surrounded; (3) the rent required to make them self-supporting; (4) the distance the workers would have to go to their employment. To satisfy these conditions is next to impossible in Manchester. A worker ought to be able to live within a mile of his work and go home in the middle of the day for a proper meal. It is too much to expect one who rises at 5.30 A.M. and gets home at 6 P.M. to rise at 4.30 A.M. and reach home at 7 P.M., in addition to bearing the expense of the longer journey. The only permanent solution is for some factories to be removed further afield, the owners taking their workers with them, for whom suitable dwellings could be built, towards the cost of which the Public Works Loan Commissioners, according to the Housing Act, 1909, advance money. The houses vacated would be available for other tenants. Manufacturers who have removed their works to Letchworth find the output greater, owing to the improved health of the workers. In Bournville children are taller and weigh more than those of the same age in Birmingham, 3½ miles distant.

In the House of Commons last week Colonel Claude Lowther asked the Leader of the House whether, in view of the peril of Laon Cathedral and other historic monuments, he would appoint a Committee to consider the introduction of specific punishment for further flagrant acts of vandalism upon the historic buildings of the world.

Mr. Bonar Law replied: I do not think the suggestion of my hon. and gallant friend would be likely to attain the results he desires.

Thus it will be seen that the Government support the opinion to which we have reluctantly come, and have already expressed in these columns, that the salvation of Laon Cathedral and other historic monuments by the threat of reprisals is impracticable.

We offer our sympathy and condolences to Mr. J. Alfred Gotch, vice-president R.I.B.A., on the loss of his son, Captain and Adjutant Roby Myddelton Gotch, Sherwood Foresters, who is reported wounded and missing on July 1, 1916, now believed killed. He was educated at Cottesmore School, Hove, Rugby (School House), and New College, Oxford, taking his degree in Law, 2nd Class Honours, in 1911, and in the following year passing for the B.C.L. (3rd Class Honours). On leaving Oxford he was articled to Messrs. Thorpe & Perry, solicitors, of Nottingham. While at Rugby he gained his "cap" at football, and during the winter of 1913-14 played for the Harlequins. He was a member of the O.T.C. at Oxford and at Nottingham, and joined the Sherwood Foresters as second lieutenant. He went to the front in February 1915, was gazetted temp. captain on July 5, 1915, and adjutant a few days later. He was mentioned in the dispatches of January 1, 1916, and at the time of his death his name had been recommended for distinction. Early in the advance on July 1, in the midst of a terrible barrage, close up to the German barbed wire, he was wounded in the wrist, but went to the help of his runner, who was in difficulties with a telephone wire which he had volunteered to lay. Captain Gotch stooped down to assist, when he was again wounded, it is believed mortally. His brigadier-general wrote of him as "one of the finest officers in the brigade."

The Aeronautical Institute of Great Britain have arranged a meeting at the Central Hall, Westminster, on Thursday next, when Mr. Edgar A. Allcut, M.Sc., A.M.I.C.E., A.M.I.M.E., will read a paper on "The Testing of Materials for Aeronautical Construction," which will deal with the testing of delicate construction material, and should be of interest beyond the limited sphere of aeronautics.

Lord Rhondda, President of the Local Government Board, on Monday last received at the Local Government Board offices a deputation of the Garden Cities and Town Planning Association and Public Utility Societies on the subject of Government help to such societies to enable them to develop their work in order

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to meet the increased needs of the population after the war. The deputation was introduced by Major David Davies, M.P., who said they asked that 90 per cent. of the valuation of the houses should be advanced by the Government, and that there should be a State guarantee of interest for the remaining 10 per cent. found privately. The rate of interest should be the same as to local authorities. The class of houses to be built by public money would be for the "working classes," persons who came within the limits of the Insurance scheme. It was proposed, at the same time, with the private money to build larger houses on the estates, to prevent the segregation of classes. Mr. Hayes Fisher, Parliamentary Secretary to the Local Government Board, and Mr. Culpin (Secretary of the Association) also spoke, and finally Lord Rhondda said he hoped good results might follow the deputation, who had given some useful information as to their proposals. It was a very difficult problem, but he intended to deal with it with a perfectly open mind and without prejudice. He hoped that all who could help him in coming to a decision would do so by giving him their whole-hearted assistance.

The British Reinforced Concrete Engineering Company, Ltd., have issued an interesting volume, which many of our readers have already received through the post, giving photographic illustrations of a large number of buildings, both at-home and overseas, in which their very convenient form of reinforcement has been employed. The great advantage of this rigidly connected form of fabric lies in the safeguard it provides against displacement by careless workmen of the reinforcing rods. It is, in fact, as nearly as possible fool-proof.

ILLUSTRATIONS.

THE NEW CUNARD BUILDING, LIVERPOOL.

We continue in this issue the series of illustrations of this fine building which we commenced last week.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

The Conference on "The Education of the Architect," reports of which have appeared in our columns as the discussion proceeded, was terminated as follows:—

Professor Dickie, in seconding the resolution, said that for some time he had been thinking very much on the same lines as Professor Pite owing to facts which he had come in contact with at his school in Manchester. There they had a full-time course of three years, and at the end they gave degrees of honours in architecture. In the first year the student's time was taken up with university subjects; in the second and third year he devoted the whole of his time to architecture. The Institute said that a year after a man had passed his intermediate he might enter for his final, and despite every effort to prevent it the majority of students refused to wait and get coached for the Institute examination. If any system of education was to be of value it was quite evident that a two or three years' course was quite insufficient, and it was only post-graduate work in which a student could show in any way what the system was likely to produce. The Institute robbed the schools by taking away its students, and such a practice, in his opinion, was absolutely destructive to all architectural education, and until some alteration was made it was quite impossible for any school to flourish—there was no possible chance. By dint of scholarships they might keep a man an extra year in some schools, but the small proportion of men available in that way was not worth talking about. He would suggest that in the case of students the Institute should make it necessary for them to spend at least two years after they had passed the intermediate before they could go in for the final, and if schools were to develop they should be entrusted with the confidence of the Institute, and any examinations which they might hold two years after a student had passed his intermediate should be equal to the R.I.B.A. final. As to the question of readjusting the whole prize system of the Institute, when he went to Manchester the question arose as to whether they would admit a final examination in schools which would go hand in hand with the type of examination of the Institute or whether they should attempt to abandon certain of the elements of the R.I.B.A. final and go in for a more general and bold examination. If the Institute would simply say that its final was something in the nature of a leaving certificate, and that after that a man had got to set about qualifying himself, it would be much better than the present arrangement. The question of teaching craftsmen over a group course of three to five years was a very difficult one in the provinces; and it would be a good thing if the different technical schools would arrange to take up men who had left one school and who had been obliged to move to another centre.

Mr. Atkinson remarked that he agreed that the educational system of the Institute ought to be entirely revised. For one thing he thought there ought to be a limit of age before a man could enter their competitions. He remembered that three years ago a prize was won by a man of nineteen—not a man at all. Before a man could come to the Institute examination he ought to have completed his course. If a man knew that he could not enter for the Institute final before he was twenty-five he would put aside all idea of working especially for the final, and he would be more likely to do his school course properly.

Mr. Fitzroy Doll said that when his eldest son went to Cambridge he found that the only source from which he could learn anything which would be of use to him as an architect was that a master of the Mechanics' Institute there could give lessons in drawing. That incensed him to such an extent to think that the greatest of all professions should be treated in that way at one of our universities. He at once set to work with a number of Dons there, from whom he received the greatest possible sympathy, in order to create a faculty of architecture in the University of Cambridge. They worked up the whole plan, and finally asked the Institute to send three members to consult with them on it. Three members went down as requested—they had not the courtesy to ask him (Mr. Doll) to be one of the number, although he had worked for three years with the Dons at the scheme—and they crabbed the idea to such an extent that the Dons told him that they were sorry to say that this great faculty of architecture which they wanted to create, the same as they had for law, medicine, and theology, was refused by the Institute. That was a grave indictment to bring against the Institute, but it was a fact. After hearing Professor Pite he could not help thinking that as a great empire they took much too small a view of the Institute. Professor Pite spoke of prizes amounting to £370 a year; it ought to be thousands, and the money ought to be provided by the Government. The Germans had got their hold on Greece and Asia Minor largely through their schools of architecture. Take the British School at Athens, to which his son went. Our Government gave a paltry £500 a year; the Germans gave £25,000 a year. The Germans had created a school at Smyrna, and the students from there had created an influence which we were feeling throughout the war. His feeling was that this question of architectural education was one that ought to be taken up by the Government. The Institute ought to approach the Government and say that it represented one of the greatest professions, and insist upon proper funds being provided out of public money for the benefit of the study of architecture. Another question he felt very strongly about was the raw material. What did the Institute do in order to help the examiners to see to it that the men wishing to become members were men of cultivation—men who had learned? In his opinion every student ought to know at least two languages besides his own before he went travelling. He would also like to see all the cameras smashed up, and

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then every young man who went abroad for travel would have to do what he did as a young man—get up at the first streak of daylight and start to measure the buildings. Nowadays a student on travel went to the nearest shop and bought a picture postcard of the buildings of the place he was visiting, and then went on to the next town.

Mr. Caulfield said they had been talking a lot about science and art. They wanted to realise that practically everything which came under their attention could be roughly divided into two groups—one science and one art. They spoke of the artistic temperament and the scientific mind, but never of the artistic mind or the scientific temperament, and that was suggestive of the way they regarded things in general. If they reflected they would see that our biggest artists had always been our biggest scientists as well, and the big scientist must also be an artist. On the question of education he thought the important point was that they should see to it that every school of architecture was not a thing apart, but a part of a school building in which the students, according to their capacity, would in their early stages work with the other students. They wanted increased knowledge on such subjects as mechanics. Long ago in the past ages the master builder or the architect did his training on the building, and he thereby learned a good deal that he could not possibly learn by the present method of education. A man with a thorough knowledge of mechanics would be more adventurous; he would have a knowledge of his materials, and that would give him courage to know that anything he wanted to do, though it might be new, was not necessarily ugly and not necessarily bad. Their great danger was to regard all these various things as subjects apart. The correlation of examinations would get rid of all that, and would help them to teach their students that architecture was only part of a big and free life.

Mr. A. T. Bolton said that, with reference to the revival of the Surveyor-Generalship, he did not know that this had worked so satisfactorily in the past as would be supposed from Professor Lethaby's remarks. The appointment of Chambers was largely due to the King, as in the same way he obtained the treasurership of the Academy. He did not think the appointment was either a good thing for architecture or for Chambers himself, because outside Somerset House there were comparatively few buildings designed by Chambers, as he was too much occupied with the duties of his official appointment. In the case of Wyatt, the result was more unfortunate, because Wyatt came into collision with Soane over the House of Commons. Soane was the architect of the Royal Palaces, and had to do with the Houses of Parliament, and Wyatt, being Surveyor-General, thought he ought to do the work. He succeeded in obstructing Soane in what he wanted to do, and Soane did not succeed in doing his rather remarkable Royal staircase until after Wyatt died. Wyatt did succeed under the plea of national style in adding some horrible stuff to the House of Commons, which brought about the fire. He felt, on the whole, they had not lost much in doing away with the office.

Professor Lethaby said one could understand that the official duties might interfere with the work of the holder of the office, but the observations of Mr. Bolton did not touch the point that administration of public work must be put into good hands. That was the sense in which something like the revival of the Surveyor-General was quite justified.

Mr. Burrage said that, speaking from the point of view of the position he held in connection with the Central School of the London County Council, he hoped the Institute would consider architecture as a craft, and would consider it as being necessary that workmanship and art should go together, and that there should be no separation. He hoped that in any development of the architectural schemes of the Institute it would be considered necessary that architecture should work distinctly in relation to all the other crafts. He did not think that any real or vital good would be effected if they were separated. He was in Liverpool when Professor Simpson was dealing with an effort to relate architecture into a definite school, and the success of that experiment was such as to entirely justify the opinion held by everybody who agreed with that sort of thing, and it was much to be regretted that, owing to dissensions between the University and the City Council, that that effort finally broke down and that architecture was separated from the other crafts. He thought that architecture should be definitely treated as a craft, and that in any educational scheme it should be related to all the other crafts and worked definitely with them, and, if anything could be done towards developing a scheme to bring in existing activities in London for that purpose, it would be extremely useful and would be much better than allowing all these separate institutions to go on carrying out this work in watertight compartments, unrelated one to another. He also thought that something might be done by the State to see that a more definite course of architectural education was developed in proper schools throughout the country, which might form the centres of areas, instead of the present isolated classes.

Mr. H. V. Lanchester said he thought the Conference ought to pass a resolution on broad lines to be submitted to the Council, and he therefore proposed "That the opinions expressed at these three Conferences on education be carefully considered by the Institute in view of any future reorganisation of their programmes of education and examination." They could not possibly nail themselves down to details, because the whole question was such a very broad one that they could not sufficiently express themselves in a resolution couched in a few words. Many of them were quite dissatisfied with the present form of the Institute's examinations, and certainly what had been said that day had given them plenty of hints and suggestions as to how the examinations should be handled in future.

Mr. Jemmett seconded the resolution, which was carried; as was also the resolution previously proposed by Professor Pite.

Professor Pite drew attention to the memorandum of the Board of Education which provided for education in building construction in complete detail in technical institutes, and he pointed out that architecture was specifically excluded as being a professional subject. Consequently it did not bring across the view of the building student the study of form. He expressed no opinion whether the Board was right or not, but, as this memorandum would probably be a sort of code for technical institutes for some time to come, it was a matter which ought to be carefully considered by the Council.

Mr. Hugh Davies said that the reasons why architecture was left out were set out in the memorandum, but, on behalf of the Board of Education, he might say they would welcome any suggestions the Council of the Institute might like to make.

The Chairman announced that there would be one further Conference, on May 16, when Mr. A. R. Jemmett would deal with the subject of "Co-operation in Design."

THE CONCRETE INSTITUTE.

(Concluded from last week.)

THE paper on "A Method of Proportioning Materials for Concrete," read before the Concrete Institute, and reported in our last issue, produced the following discussion:—

Dr. J. S. Owens, B.A., M.D., A.M.I.C.E., in proposing a vote of thanks to Mr. Johnson, said it was a most valuable paper, and raised a point which, he thought, ought to be gone into. What he proposed to say would not be said in a critical mood, but rather to bring out replies to the difficulties which he saw. He would like to make it clear in the first place that the whole thing was based on the assumption that the strength of concrete was determined by the amount of

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cement—that was, the more cement the stronger the concrete. If that was true then a good deal of the rest followed; if it was not true then, of course, a good deal of it broke down. He did not know whether it was true. If they made an examination like Mr. Johnson did in amongst little particles, and looked round, they would see, he thought, little spaces filled with a mixture of sand and cement—he was speaking of the spaces between the large aggregate. The larger parts of the aggregate would be separated from each other so by particles of sand and particles of the smaller aggregate. If they added more cement they would separate them further. Now, supposing they had completely coated all the particles with cement and filled all the cavities with cement, then it seemed to him that beyond that an addition of further cement would not increase the strength, unless it happened that the strength of the aggregate was less than the strength of the cement. It might be less, but that was not usually the case. He suggested that Mr. Johnson should give some evidence to show that the strength did really depend upon the cement contents. Mr. Johnson said that any cement beyond that necessary to fill the voids was waste and did not increase the strength.

Mr. Johnson: Perhaps I might correct that. What I said was that statements had been made and tests devised to prove it.

Dr. Owens: Perhaps you will say whether you agree with it or if you do not agree with it. However, I raise the point to be discussed. Dr. Owens went on to say that in the case of gravel concretes they had two differences between them: There were rounded particles, which, as Mr. Johnson pointed out, had a smaller surface per unit volume. Was it right to assume that that factor alone would increase the strength? There was a smaller surface for adhesion to take place, and it was assumed in the paper that that would increase the strength. He (Dr. Owens) suggested another factor which did increase the strength, and that was the smaller percentage of voids. Was it possible they had those two factors, one acting to increase and the other to reduce strength? Presumably they got with gravel concrete the same result as with broken stone, but in the matter of the surface adhesion it was not very clear, he thought, that the effect was as stated. Supposing they had a large surface produced by a large number of small particles, then the probability was they were reducing the strength. They were getting undoubtedly a large surface for adhesion, but breaking up their concrete to get it, and the smashing up reduced the strength. Supposing, on the other hand, they had particles which, instead of being spherical, were irregular in shape, then each particle had a larger surface. To make the statement baldly that an increase of surface would reduce or increase the strength was not, he thought, enough. It seemed to him it would increase the strength if the surface was due to replacing spherical particles by irregularly shaped particles, but it would reduce the strength if it was due to replacing larger particles by smaller ones, and that was borne out by the fact that smaller ones gave weaker concretes. Mr. Johnson, in his conclusions, said that in the future, and in order that tests at various places should be truly comparative, two things were required, namely, the percentage of cement in the concrete, and the strength of the cement in mortar tension or mortar compression. He (Dr. Owens) would like to add another one, and that was the question of moisture content. He was speaking entirely of moisture which was not in chemical combination, but he knew for a fact that moisture in porous stone reduced the strength, and he should think it pretty certain that moisture in cube concrete would also reduce the strength. Therefore, he suggested another addition viz. that the cubes when being broken should have the same moisture content or that precautions should be taken that they should have the same moisture content. If they had different moisture contents then the difference in strength might be due to the moisture or difference in the mix, and they did not know which, and it was not a good practice in research to vary too many of their practices at once. The thing to do was to vary one and so on. In Portland stone he found that the presence of moisture made a great difference. Speaking from memory he believed that dry surface stone was 30 per cent. stronger in compression than when saturated in moisture, that was, dipped in water and left there for a few minutes. It did not take long for the stone to suck it up.

Professor S. M. Dixon, M.A., D.Sc., M.I.C.E., in seconding the vote of thanks, referred to Mr. Johnson's conclusion that 30-40 per cent. higher strengths were obtained with 3.16 in. cubes than with 6 in. cubes. He (Professor Dixon) seemed to have an idea that the larger specimens would generally give stronger results, but would it not depend nearly altogether on the size of the aggregation? The size of the specimen should depend upon the size of the aggregation. If they had the aggregate very large, then they required a large specimen. In making a test a great deal of the specimen—he did not mean the strength—would depend upon the outside material; they generally brought the finer material to the outside. In small specimens there was very much finer material than in large ones. Again in the specification of the concrete if they really looked for a test of strength surely the quantity of water added must be taken account of. Certainly with a very wet mix they got a much weaker concrete than with the right quantity of water. If the strength of concrete depended upon the cement must not they take some care in getting the right quantity of water? He thought the more recent experiments in America were showing that the amount of water added was very important when they aimed at getting consistent results in the laboratory.

Mr. D. B. Butler, F.C.S., A.M.I.C.E., observed that Mr. Johnson seemed to be largely comparing the comparative values of gravel and broken stone aggregates. The author suggested that gravel being as efficient as it was was due to the fact that it adjusted itself, and "flowed" more easily than broken stone. He (Mr. Butler) thought it very possible that there was a great deal in that. The strength of concrete surely must depend largely upon the shape of the stone used in making it. Rounded gravel, for instance, would more likely under stress give way than angular stones, which had more bite for one thing. The figures given by Mr. Johnson as to the difference in different bags of cement supposed to be of the same sample were very striking. Statements by the seller that bags of cement were all the same consignment were not always borne out by the fact. This should not be so if the seller took the trouble to see that the cement supplied was of the same delivery as manufactured. Of course, in nine cases out of ten this difference would not occur in cement delivered by some people, but it happened, for instance, when a merchant might have two or three deliveries in his warehouse, perhaps from the same manufacturer. Alluding to Mr. Johnson's method of mixing, the speaker remarked that surely two different men in two different places would not decide on the same amount of sand to secure consistency. It seemed to him to entirely depend upon the operator's idea of what was working consistency. The same criticism might be levelled at a specification given by Mr. Johnson for concrete equal to average 1 : 2 : 4 concrete, and also to his statement that the proportions for mixing should be determined on the principle that the minimum amount of sand consistent with easy working of the mass should be introduced. What was easy working of the mass? It seemed to him that would depend entirely upon the ideas of the man who was mixing the concrete, and, therefore, by no means a regular thing in different places. Dr. Owens made a remark as to the difference in the strength of concrete when wet or dry, or rather put forward the suggestion that before testing a concrete they should determine the amount of moisture in it. Dr. Owens based his views, he (Mr. Butler) thought, largely on tests he had made with limestone.

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One could quite understand that limestone, being a non-hydraulic material, would afford more or less lubrication and crush more easily. But cement on the other hand hardened better when moist than when dry. Therefore, he thought it did not apply so much with tested cement as it would with tested stones and other non-hydraulic materials.

Mr. M. E. Yeatman, M.A., M.I.C.E., said the results given by Mr. Johnson seemed to show that a less amount than 50 per cent. of sand was sufficient. The corrected proportions as worked out by the author were generally 3 to 1 down to 2½ to 1 of stone to sand, and if that were correct, as seemed to be borne out by the tests, that was a valuable thing to know. It seemed that their system of proportion was not quite right. They had gone generally on the idea that the sand should be at least half the amount of the stone, and the proportion of cement to that varied. This would seem to show that the proportion of cement should not be less than 1½ instead of 2.

Dr. Oscar Faber, D.Sc., A.M.I.C.E., agreed that the paper was most valuable to them, as were all papers which gave results of actual research work. Only research such as was recorded there would ever give them a chance of learning anything at all about concrete. Anything else was simply what they were told by various foremen who always seemed to have opposite opinions. Only research of this kind gave them any reliable data to go on with. He was not quite in agreement with Mr. Johnson about his chief results. He still thought that the way to specify concrete was exactly the way in which concrete was specified now. He did not think it should be left to the contractor to determine the amount of sand to ballast, and that was clearly implied in the specimen specification. Mr. Johnson said the proportions for mixing should be determined on the principle that the minimum amount of sand consistent with easy working of the mass should be introduced. Clearly if that proportioning was to be done by the engineer or architect there would be no need for the instruction to appear in the specification, and he thought it clearly implied that the builder had to do that work. He thought the engineer should determine what stone and sand he was going to use, and should make for himself the experiment as to what proportions he wanted, and then make his specification accordingly. He thought Mr. Butler said it was a matter that would depend upon the ideas of the man who was mixing the concrete. He (Dr. Faber) would sooner be the engineer who used his judgment, and told the contractor to work to certain proportions. Referring to results of tests stated by Mr. Johnson in his tables, Dr. Faber gave figures on a blackboard to show that in spite of the fact that stone contained a larger portion of cement than gravel the results were equal, each giving the same strength. If, instead of saying they were going to have a 1 : 2 : 4 concrete they had 20 per cent. of cement, then their stone would be appreciably weaker than their gravel. He thought they had to consider the disadvantages which the use of the so-called corrected concrete carried in its trail, and they had to consider first that the corrected concrete contained much less sand, and correspondingly more stone, and that made it very difficult, especially in the case of reinforced concrete, though not so much in plain concrete, to absolutely ensure that they would have no air pockets where they could not get the stone to pass but where they could get the sand to pass. For reinforced concrete Dr. Faber was not in favour of using a preparation of concrete where they had only 1½ times as much sand as cement, and three times as much stone as sand; his own feeling was there was a great tendency in that event to have several bars. If pockets were formed they carried corrosion in their trail, and there was no doubt in his mind that a concrete with a certain excess of mortar was the concrete to be aimed at; and if the increase in strength which they got by largely reducing the sand was only represented by figures which he showed of something less than 10 per cent. in one case and about 5 per cent. in another, he was of opinion he would sooner have the concrete with the larger amount of sand than sacrifice that amount of strength. He held that if the material was not dirty they could get no increase in strength by using it. It was only by virtue of its being dirty that they got any increase in strength by using it. So one might say that with an absolutely clean aggregate they got no increase at all, and that the increase they got with the dirt was due to the proportion of dirt in it.

Mr. Ewart S. Andrews, B.Sc. (Eng.), observed that in a cursory glance at a paper which was describing the results of a very large number of tests, it was very difficult to get a correct perspective of it and the exact trend of results. As far as he could understand Mr. Johnson had discovered and proved that in the ordinary 1 : 2 : 4 mixture they did not get, as many people would assume, the same amount of concrete, and therefore if they were comparing the strengths of two concretes on that mixture, they must not, if they found the strengths were different, blame the aggregate if the real reason was that the amount of concrete was less in the weaker that in the stronger. That, he believed, was the principal claim of Mr. Johnson's research, and it was a very important point. So far as he could make out, Mr. Johnson had proved that much, if not all, of the difference in the strength between concretes of apparently the same mixture and different aggregates could be attributed to the difference in the amount of concrete. So far, Mr. Johnson had done a very valuable piece of work, and it seemed to him (Mr. Andrews) quite possible that it might be desirable in all laboratory experiments to standardise their specimens in some way such as this; but he took it that Mr. Johnson would rather have them go further and in practice specify their mixtures in terms of his corrected values, and it was there he (Mr. Andrews) saw considerable difficulty. In the first place it seemed to him that the method of determining the corrected proportions was a difficult one, if not a hazardous one, and when they had a result it appeared to him it would present practical difficulties in the mixing. What they might call the running up of proportions was really of great value; it was then easy in practice, and it seemed to him that an equivalent fact could be obtained by attacking the question from every point of view. If the real purpose was to know exactly how much cement they were using it seemed to him quite possible to prepare curves from experiments, such as Mr. Johnson had made, showing the percentage of cement in per yard of finished concrete for various mixtures. With that information they could determine exactly how much cement was required for a certain mixture—that was to say, instead of altering their proportions of mixing they could use those results to enable them to calculate how much cement they would require. Then, of course, the objection might be raised that by that way they would not always get the same strength of concrete for a 1 : 2 : 4 mix, but then again it seemed to him they would be able to estimate the difference in the concrete because from their published results they would know that with a certain aggregate, with a proportion of 1 : 2 : 4 they might expect a certain strength, and that would enable them to determine either which concrete to use or whether a certain aggregate which could be obtained locally with ease would be good enough for the purpose.

Mr. C. J. Jackaman, A.M.I.C.E., having also contributed to the debate, the President added a few words in support of the vote of thanks to Mr. Johnson, which was accorded with much heartiness.

Mr. Johnson, in replying, dealt with the various points raised. Dr. Owens had suggested that the cement did not govern the strength. He would repeat that the cement did govern the strength, other things being equal. The more they diluted their cement the less the strength, and he thought that was a reasonable way to look at it. Dr. Owens also suggested that an excess of cement did not increase the strength. He thought that Dr. Faber had perhaps settled that point rather well, and certainly it did increase the strength. Touching another question raised by Dr. Owens and another speaker, Mr. Johnson

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asserted that the extra surface area of an aggregate did decrease the strength for two or three reasons, the principal reasons perhaps being that all the materials carried in with them a certain amount of dirt, a certain amount of fine stuff sticking to the surface. As to Dr. Owens' argument regarding water reducing strength, the author of the paper said they knew that almost all stone had a considerable percentage of voids, but he did not know that the point applied to concrete, unless they were comparing a dry cube with one that was wet. In the latter case tests were a little bit disturbing, but he thought he was right in saying that by allowing it to dry out again they got a greater strength than they previously had. As to Professor Dixon's statement that the larger specimen usually gave the higher strength, they had found at Cork that the smaller specimen usually gave the greater strength. Regarding another statement by Professor Dixon, he (Mr. Johnson) had already pointed out that the 3.16 in. cubes were too small because there was a tendency to place more of the finer parts of the concrete in them in order to get it into the moulds easier. The moulds were not made for concrete but for paste and mortar tests of cement. They must suppose that the architect or engineer in charge of the job would know what consistency was required in order to get the right movement of the material in the bars on the job, and the working consistency would depend upon the lubricating material which in the first place would be the water, and in the second place the sand. Those materials would certainly have a rolling effect and bring the stuff into position. If they had an excess of sand then they could very often do with less water. He went on to express thanks to Mr. Butler, who, he said, did a lot of testing. Mr. Butler suggested that a rounded concrete was weaker than the broken stone because of its shape—he (Mr. Johnson) supposed he meant the reinforcing kind. He thought the tests of which he had spoken in his paper might prove it made very little difference, but he would go further than that and remind them of the huge test made in America on different mortars—of course, they did not go so far as concrete—where they found no difference between round and angular particles. Badly broken flint did not compare badly with broken stone. If one was satisfied with 1 : 2 : 4, of course there was no reason to move from it. Dr. Faber thought the specification of concrete became left to the contractor. That seemed to be the case in a way, but he (Mr. Johnson) suggested that samples of the materials proposed to be used should be deposited with the architect or engineer before any concrete materials arrived on the job, and the proportions to be used should be proved to be as called for by a demonstration in the presence of the architect or engineer, who should then give written authority to use such proportions, if found correct. He thought a test ought to be made of the aggregates, and might be made by the contractor, who might then call the architect to the pit where he proposed to draw the materials from, and in the architect's presence make up a batch of the materials he proposed. Then the architect could make up his mind which would be best for the work. After indulging in some little raillery regarding Dr. Faber's reference to the use of sand, Mr. Johnson said there was a decided advantage in including the very fine material which was in the aggregate in the concrete. He admitted that the strength was reduced by that, but they protected their steel better by making it a dense concrete. What he was trying to drive at in his paper in the first place was that no 1 : 2 : 4 concretes contained the same percentage of cement, and varied tremendously; and, in the second place, because of different percentages of voids in different materials, he suggested—and he thought he had proved in these tests—that they should decrease the sand where the voids were decreased because they introduced sand for the purpose of filling the voids and helping to make a dense material. If they had a material which contained only a small percentage of voids and still put a large percentage of sand in it, they would not get as dense a concrete as they should get. Therefore, he suggested that the materials should be actually tested on the site. For a big job there must be a decided advantage in testing materials, first for proportion, and also for strength. When they knew how they stood, the method of proportioning, he thought, was not very hard. First they introduced a definite percentage of cement. The next thing was to combine large and coarse material with the cement in such a way that they got the heaviest concrete—that principle was not new—and then they got the greatest strength. In conclusion, Mr. Johnson expressed thanks to the President for his remarks, and also for the help he had given them in bringing out those tests which they were now undertaking out of Government money. Mr. Wentworth-Sheilds had worked very hard for it. Mr. Johnson added that he had heard from America in a general way that our tests agreed with theirs.

The Chairman intimated that this meeting practically brought the ordinary session to an end, and the date of any subsequent meeting would be communicated by the Secretary.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

(Concluded from last week.)

REPORT OF THE TOWN PLANNING COMMITTEE.

Six meetings of the Committee and two joint meetings with other professional societies have been held. Sir Aston Webb was re-elected Chairman, Professor Beresford Pite Vice-Chairman, and Mr. W. R. Davidge Honorary Secretary.

The proposed arterial roads in Greater London were the subject of a conference of local authorities and professional societies on May 19, 1916, when a resolution proposed by Sir Aston Webb, on behalf of the Institute, and seconded by Sir Alexander Stenning, was carried unanimously. A deputation from the conference waited on Mr. Walter Long, President of the Local Government Board, on October 31, 1916, and the subject is now being further considered by Sir George Gibb, Chairman of the Road Board, to whom it was referred by Mr. Long. It is to be regretted that the Government have seen fit to close the London Traffic Branch of the Board of Trade, which, under Col. R. C. Hellard, had proved itself of the utmost value to London. The laying down of such arterial roads in and about many of our large centres will be a work of pressing national importance after the war, and the Institute is doing all in its power to further such proposals.

Arrangements have been made with the Allied Societies of the Royal Institute for co-operation in the representation of the architectural point of view at the various Local Government Board Inquiries into town planning schemes proposed by local authorities, and constant effort is being made both by the Institute and its Allied Societies to secure, if possible, the appointment of an architect to collaborate with the town officials in such schemes. A letter emphasising the need for efficient architectural advice at the earliest stages of a scheme is sent out to all local authorities contemplating town planning or improvement schemes. The Committee are also in close touch with the Local Government Board in the matter, and early intimation is facilitated by a system of Press cuttings which the Council has recently inaugurated, at the suggestion of the Committee

Much attention during the year has been given to the S.E. & C. Railway Company's proposals with reference to the proposed strengthening of Charing Cross Bridge, and a joint committee of the Institute and the London Society has been largely instrumental in drawing attention to the nature of these proposals. It will be remembered that the railway company last year submitted to Parliament a proposal for the construction of steel arched cantilevers and additional masonry piers under the eastern portion of the Charing Cross Railway Bridge at an estimated cost of some £167,000. The Bill having passed the Lords was rejected by the House of Commons; this

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Session it has again been introduced, and despite strenuous opposition has passed the stage of second reading and is now being considered by a Committee of the House. It is noteworthy, however, that the suggestion put forward on behalf of the Institute and the London Society, for a great Imperial Bridge carrying road traffic over the Thames at Charing Cross, has met with almost unanimous support from all parties both in the House and out, and it is hoped that the widespread public discussion on this great project may yet bear fruit. The Charing Cross Bridge Committee has held twelve meetings and the special thanks of the Committee are due to the Rt. Hon. John Burns, M.P., who has been indefatigable in his public-spirited labour to secure a worthy public improvement for the metropolis of the Empire.

The proposal for a Thames Barrage has been further investigated, but in view of more pressing matters and the detailed investigation involved, the consideration of the subject has been adjourned for the present.

REPORT OF THE INDUSTRIAL RESEARCH COMMITTEE.

On the recent formation of a Privy Council Committee to encourage Industrial Research, the Royal Institute approached the Advisory Working Body of this Committee with an offer of suggestions for researches desirable in connection with building materials. As a result a committee was appointed representing the Institute Council. This Committee has met the Government Committee, and in the course of numerous subsequent meetings of its own and further negotiations with the Government Committee and various institutions, a number of important problems have been put forward, and are in several cases under actual investigation. One of the most important subjects dealt with is that of timber in relation to decay and preservation, use of colonial woods, and afforestation. Through the medium of the Imperial College of Science, it is hoped that national attention may be called to the needs of investigating decay and preservation in a manner leading to the formation of an Institute for such work, while Indian and Colonial timbers are being studied by a special committee on which the R.I.B.A. is very strongly represented, and which now enjoys a Government grant for its researches.

On the decay and protection of metals, both ferrous and non-ferrous, the Committee have been placed in touch with the Iron and Steel Institute and the Institute of Metals, both of which bodies are courteously considering the problems of special interest to architects in their researches.

Other subjects under discussion are improvements of glass for pavement lights; defects in roofing and floor tiles, and durability of paints, which it is hoped will later receive attention.

The Committee has now extended its activities with a view to a recommendation to the Board of Architectural Education for further training in science.

Mr. Alan E. Munby [F.] is Chairman of the Committee, and Mr. Digby Solomon [A.] Hon. Secretary.

REPORT OF THE ARCHITECTS' WAR COMMITTEE.

On the outbreak of war a general meeting, open to all architects, was called by the President of the Royal Institute of British Architects, at which a committee was formed in order to raise money for the Prince of Wales's Fund as a united contribution from the profession; to offer to the Government the services of architects wishing to volunteer them; to assist architects about to join the Forces in carrying on their practices; to help financially (as far as possible through the medium of suitable employment) architects who were placed in temporary difficulties owing to the war; and to report in due course to the Council of the Royal Institute of British Architects. An Executive and Employment Selection Sub-Committees were immediately formed, and have been working ever since, these committees having held 156 meetings.

Through the generosity of individual donors and the Architects' Benevolent Society the sum of £260 has been sent by the War Committee to the Prince of Wales's War Relief Fund.

Careful lists were prepared of those seeking employment with their various qualifications, and representations were made both formally and through personal introductions to the Government and other departments likely to require such assistance, offering to suggest men for employment as they might be required. It soon became clear, however, that very few positions of an advisory character would be placed at the Committee's disposal. The number of offers of service received by the Selection Committee has been 1,170, and the number of Government departments and other bodies which have applied for assistance has been 48. In all on about 968 occasions applicants have been either placed, or in some manner advised or assisted in the utilisation of their professional qualifications, including cases put forward in more than one direction.

Though the scheme for assisting architects joining the Forces in carrying on their practices was widely circulated, and machinery created for its development, very few calls have been made for help in this direction.

Continuous assistance and advice have been given through the Professional Employment Committee to architects financially embarrassed by the war, by employment upon reports, measured drawings, and similar useful work, while a very large proportion of the architects employed upon the Government Civic Survey, which has its headquarters at the Royal Institute of British Architects, are applicants to the War Committee under this branch of its work. The number of applicants under these departments of the Committee's activities has been 502, and the number of occasions in which assistance has been rendered 389. Of the 115 employed on the Civic Survey included in the above numbers, 80 have since obtained more remunerative appointments, while 48 of these have been again further assisted.

The position of architects after the war has been receiving the careful consideration of a Sub-Committee which includes representatives of the Allied Societies and the Architectural Association.

The Government's National Service scheme has naturally had its effect on the Committee's work, and on the suggestion of the Provincial Architectural Societies, a deputation from the War Committee has been received by Mr. Chamberlain, and an Advisory Council formed to assist in the best utilisation of the services of architects when they enrol. Everything so far done in this direction has already been published in the professional journals. The Committee take this opportunity of thanking its working Sub-Committees and their honorary officials for their valuable assistance.

BERGUES.

By JOHN A. RANDOLPH.

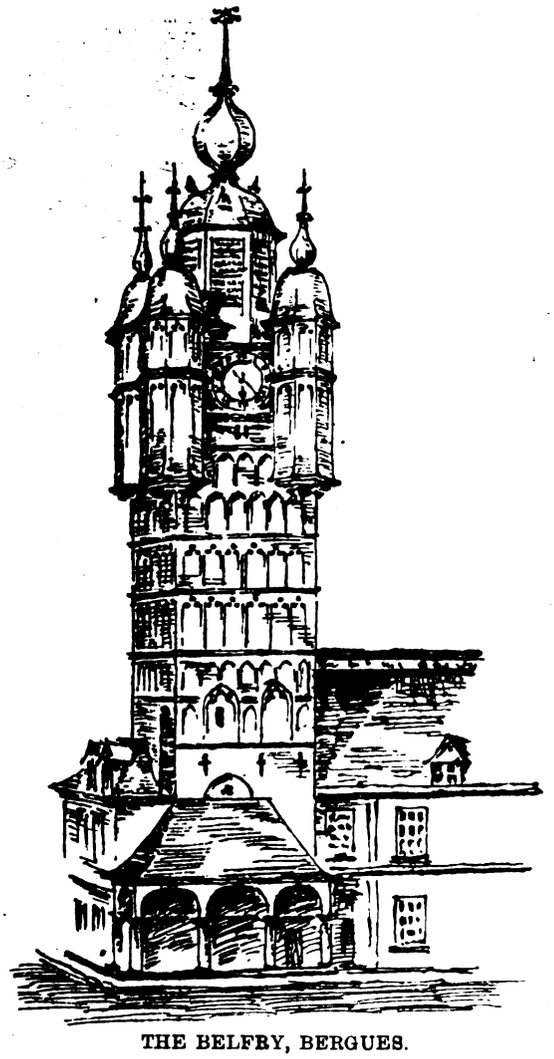
AT a few miles inland from Dunkirk lies the fortified town of Bergues, at the junction of three canals. It has been several times besieged, but successfully resisted the English in 1793. Spaniards and Dutch also took the town by storm. The fortifications were designed by Vauban.

The Gothic brick church of St. Martin was reconstructed in the sixteenth century, and contains the reliquary of St. Winoc and several pictures, including one by Rubens. The Spanish built town hall, dating from 1653, was restored in the middle of last century.

The picturesque belfry, with its corner turrets and spire, is more effective than that of Douai, and is profusely ornamented with rows of blind lancets, the double stage just below the turrets being the only portion where the arcading is cusped. The building is of brick, of the sixteenth century, and is a "Historical Monument." It contains a bell of 6,500 kilos, besides a carillon.

Outside the town, on the hill, was formerly the Abbey of St. Winoc. The two towers are guides for mariners.

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THE BELFRY, BERGUES.

THE TOWN PLANNING INSTITUTE.

MR. J. W. COCKRILL (President) took the chair at a meeting of the Town Planning Institute held on Friday, April 20, at the Surveyors' Institution, when the subject for discussion was "Road Construction and Improvements by Town Planning Schemes."

Mr. W. Rees Jeffreys, in opening the discussion, said he should like first of all to know what was meant by town planning, for there was often a great divergence of opinion. Some people associated with the words "town planning" quite a different set of ideas to what another group did. He used town planning in a comprehensive sort of way. To his mind town planning not only meant the provision of houses, but included also the provision of roads and all things connected with those two subjects. In most people's minds there was a sort of division between the two, and even the President of the Local Government Board seemed to draw such a distinction. They found people talking of arterial roads and considering them quite apart from the transport of the population and of goods. He looked on town planning as a measure by which expenditure on housing and roads could secure the maximum advantage of that expenditure. Then he found that there were two ideas current amongst municipal engineers and others. To some the keynote of town planning was amenity. To others the keynote was communication. He had heard the two ideas discussed, and he was inclined to think that the balance of argument was in favour of those who thought the basis of sound town planning was communication. That was to say, if they could provide the arterial roads all the other things would sooner or later come. On the other hand, if they did not get their communications and did not settle and establish their main arteries the other things could not follow, because they would have prevented the free flow of the population from the centre to the outskirts. It was therefore from that point of view he approached the subject of town planning, and the question he had put to himself was, "Can we get good and improved road communication under the Town Planning Act?" It did not seem that they would be able to get improved and increased arterial road accommodation by any other means. The construction of new roads in the future, as in the past, would have to depend almost entirely on private initiative and private cost, with such small assistance as the public authorities could squeeze out of their reserves. Private enterprise appeared to have added during recent years an average of 332 miles of road and streets per annum to the total mileage of public roads maintained by local authorities in England and Wales. These were the roads and streets laid out according to the ideas of individual landlords and others interested in estate development. He asked whether it was possible, if public funds would not supply the necessary money, to use the machinery of the Town Planning Act to secure that some or all of the 330 miles of roads built annually by private capital should be so laid out as to serve as through communication roads, relieving congestion, instead of tributary roads, increasing it. He put the following points: (1) Can the machinery of the Town Planning Acts be used to secure the sites for arterial roads in advance of building development? (2) If the answer to question (1) is in the affirmative, what financial obligations will be imposed on the town planning authorities? (3) As a road to be useful as an "arterial" or "through" road will require in many cases to pass through the areas of several authorities, can these authorities be induced or made to work together? (4) As nearly all arterial roads require special works, e.g., bridges over railways and rivers, for which the landowner cannot be reasonably expected to pay, where is the money coming from to pay for these works? With regard to the second question he had been to all the authorities who had town planning schemes, and the broad result of his inquiries was that arterial roads could be built in town planned areas at a less cost than by any other machinery yet available. But the progress was very slow. To get an answer to the third and fourth questions it seemed to him the best course to pursue was to take a number of concrete cases and try to work them out. He took four cases—viz. the Kingston by-pass, the North London circular road, the Eastbourne-Hastings road, and the London-St. Albans road. The result of his examination was very discouraging, but after going through every possibility he came to the conclusion that there was very little hope under present conditions of any authority undertaking the liability of constructing such a road as the Kingston by-pass under town planning schemes. As to the circular road round London it was more hopeful. New roads connecting county boroughs presented another set of difficulties. The Local Government Act of 1888 has one serious weakness. It cut off the great centres of population for the purpose of local government and local taxation from the country districts surrounding them. The separation of these two groups had had some unfortunate results, and in no direction had it been so bad as in the effect it had had on the development of communication between the big towns. He considered that under existing conditions it was impossible to get a new road built between two county boroughs, and the only way in which this condition of affairs could be altered was by redressing to some extent the state of affairs brought forward by the Act of 1888 and making the county boroughs and the districts surrounding them for certain purposes single rating units. With regard to the St. Albans road he came to the conclusion that without in any way taking away from the district councils the right to themselves promote town planning schemes the county councils could with advantage be given concurrent powers to utilise the powers of the Town Planning Act. His examination also showed that, from a practical point of view, there were three outstanding difficulties which prevented the machinery of town planning being largely used for purposes of arterial road construction and improvement. Those difficulties were:

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(1) The absence of any inducement for men with the necessary qualifications—imagination, driving power, and negotiating ability—to initiate and carry through schemes of road construction and improvement under the Town Planning Act, and of any organisation for training and employing such men. (2) The financial obligations imposed upon the authorities, particularly the provision of the cost of special works and of the cost of construction in advance of building development. (3) The divided interests of adjoining authorities, and particularly the sharp division of interests between administrative counties and county boroughs. They were the difficulties which face all those engaged on pioneer and constructive work—how could the men and money be found and used, and how could the opposition of existing interests be allayed and overcome?

To meet these difficulties he made the following suggestions: (1) *The Men.*—Formation of an official or semi-official organisation attached to the Local Government Board for the training and employment of practical town planners, whose members shall be available for employment by local authorities, the organisation to be authorised and encouraged to undertake pioneer work and promote schemes on which their members shall afterwards be constructively employed. (2) *The Money.*—The cost of special works and expenditure over and above what can properly be fairly charged to the landowner and the local authority to be paid by the State. (The alternative is to enlarge the rating areas so that the county boroughs and the administrative counties are made one rating unit for the construction and maintenance of arterial roads.) (3) *Divided Local Interests.*—The establishment of a Permanent Commission on the "Powers and Boundaries of Local Authorities," which shall, after due inquiry and negotiation with all interests concerned, propose to the Local Government Board such alterations and adjustments in the duties, powers, and areas of particular local authorities as special local conditions and changing circumstances appear to require. Such proposals, if approved by the Local Government Board, with or without alteration, shall be embodied in a Provisional Order and, subject to the usual formalities, become law.

Mr. G. L. Pepler read a communication from Sir Herbert Jekyll, who said the Act was not primarily concerned with the problem of arterial roads, but he considered a statutory body should be set up charged with the duty of dealing with them. At the same time something should be done to encourage the provision of arterial roads under the Town Planning Act. He thought the question of the levying of tolls should not be excluded.

The President said he thought the paper was one which must have considerable influence on the future of their work, and particularly at this moment when the Local Government Board was likely to consider the question of pressing forward the work, which had now become of urgent necessity. He thought the slow progress which so far had been made was due to a large extent to the misapprehensions of officials, who took the view that the Town Planning Act entailed a considerable amount of work, and as a result the local authorities became afraid of the expense. This fear was heightened as they became aware of the powers given in the first portion of the Act, which was compulsory and threw upon the local authorities the duty of compelling many of their own members to spend money on repairs. It caused them to take fright and to think that if the first part of the Act was so expensive it meant that the second part was expensive also, and that had kept them back. Then, of course, delay had been caused by the depletion of staffs. There was hardly an office which had not lost more than half its men, and he himself had lost nine out of ten, so that not much time could be spared for work of this kind. He thought there was very little chance of anything being done until after the war was over. He felt that when local bodies and officials who had been lax in the past found that the work was likely to be taken out of their hands they would be very anxious to go on with it. Another very useful suggestion was that with reference to the Act of 1888. If some powers could be given for dealing with roads between two large centres it would add very largely to the usefulness of town planning.

Mr. E. R. Abbott, in proposing a vote of thanks to Mr. Jeffreys, said the experience of Ruislip-Northwood showed that it was possible by town planning schemes to provide for the laying out of roads built by private enterprise under public control. He considered all town planners should be optimists, for although it took them four years to get the Ruislip scheme through yet it showed that all difficulties could be overcome. He considered that town planning consisted of something more than putting down so many roads. A scheme must be comprehensive. The London Arterial Roads Conference did produce a scheme for arterial roads for London, and it was only lack of money which prevented it being carried out. A great deal could be done by negotiation, and at Ruislip they got all the land required for 60-feet roads without paying any compensation.

Mr. E. Willis (Chiswick) seconded the motion, and said that there was plenty of ability to town plan, but no money. In his opinion, the provision and maintenance of the arterial roads of the country was a matter for the State. He would also sound a note of warning with regard to extra authorities. His strong opinion was that they must not have new authorities, but they might have combinations of authorities, as they had in the case of joint drainage boards, and further powers might be given to such combinations.

Mr. H. R. Aldridge said he gathered that the cost of building roads under the Town Planning Act was £20,000 a mile, as against £30,000 a mile when built under by-laws. He believed the temper of the nation was such that if at the close of the war the Government and the local authorities did not get a move on in regard to these social problems there would be trouble. He believed that within five years from now town planning would be made obligatory. Where there was no town planning there was waste of money, happiness, and health, and they ought to press on Parliament to say the Act should be made obligatory.

Mr. F. W. Platt instanced the difficulty which Salford had to face in regard to the provision of roads to carry the traffic from the Manchester Ship Canal Docks, and said it seemed useless to expect co-ordination amongst local authorities with regard to town planning unless there was some driving force as suggested. He could conceive no better plan than to have a central authority, composed of the members of local authorities, administering a large area.

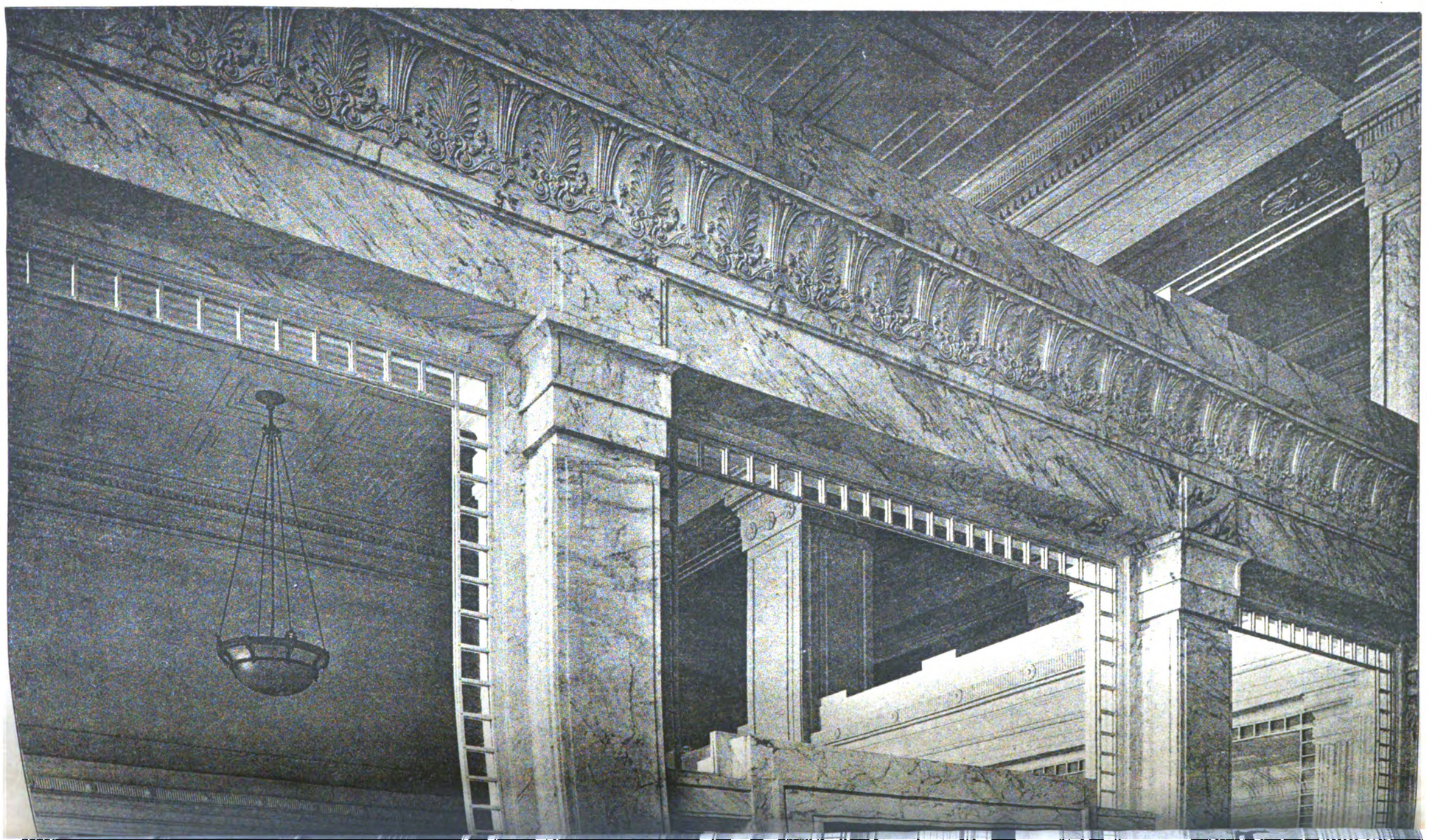
Mr. R. Wellbye questioned whether town planners would be able to bring into existence the roads required. The objects of town planning were so preponderatingly local that it would be outside the scope of the town planner's training to study a problem which, like road communication, must be seen as a whole, and demanded specialist knowledge to handle. A matter which seemed to him of considerable importance was that a road which was to be an arterial road should be recognised as such in a town-planning scheme before it was laid out, and the frontages should only be used for public parks, public buildings, and residences.

Mr. Lloyd (Cardiff) said that whilst they might think that some of Mr. Rees Jeffreys' conclusions were a little bit pessimistic they could not accuse him of lacking boldness. When he saw danger he went boldly ahead. It seemed to him that unless they were prepared to face the difficulties, which were very real, it was quite hopeless to expect any great town planning development in the future. With regard to skeleton town planning which Mr. Rees Jeffreys suggests, he did not know whether his opinion was that the town plan should merely contain the lines of these main through traffic roads or whether he would insert the other conditions as to limiting the number of houses to the acre and so on, which he mentioned in what he called the original scheme. He could not quite see what the distinction was between the original scheme and a sort of makeshift town plan simply to get

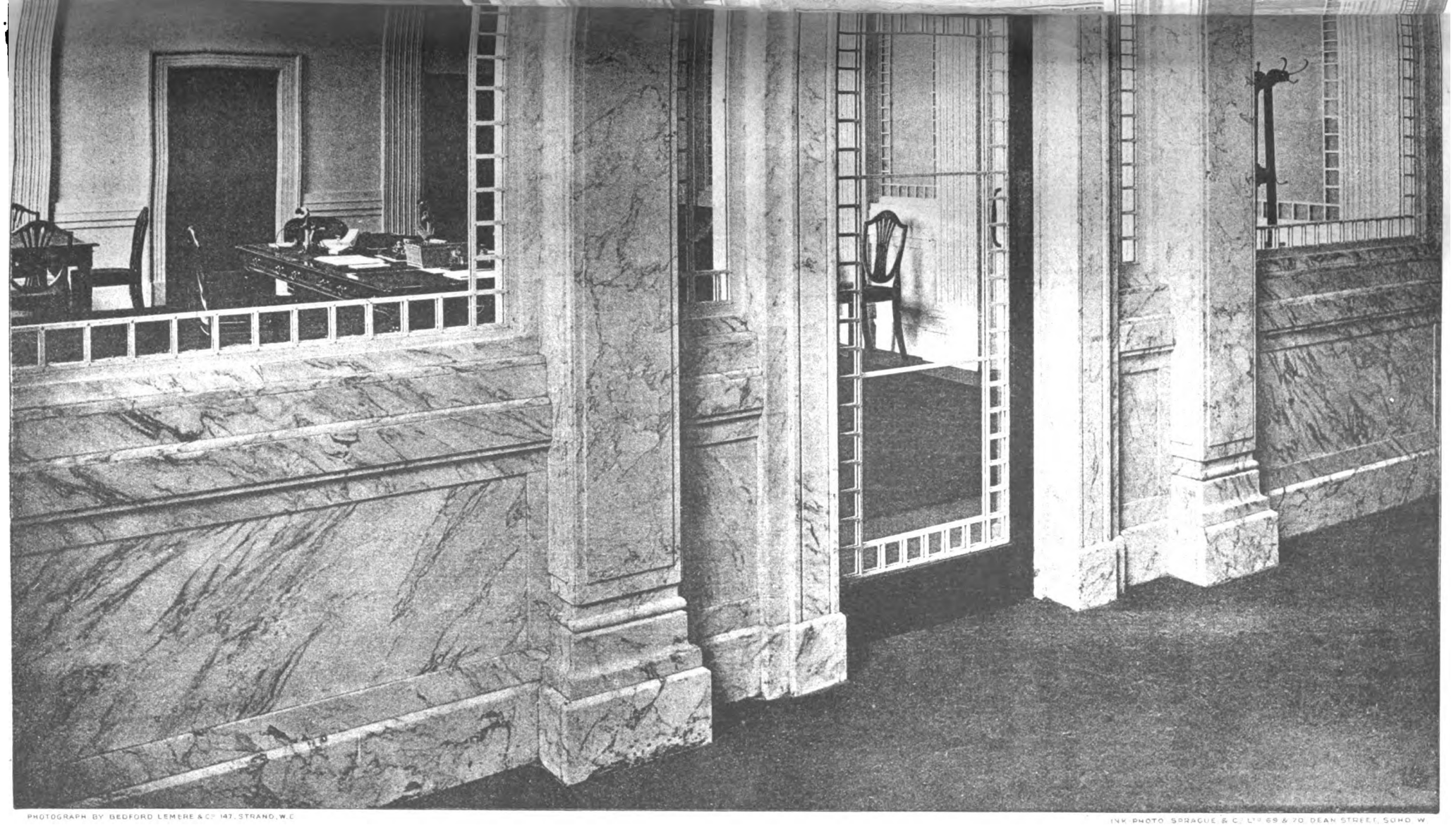
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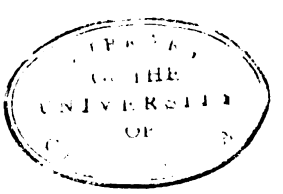
THE NEW CUNARD BUILDING, LIVERPOOL. ENTRANCE TO MANAGER'S SUITE FROM GENERAL OFFICE.

MESSRS. WILLINK & THICKNESSE } JOINT ARCHITECTS.
MESSRS. MEWES & DAVIS }

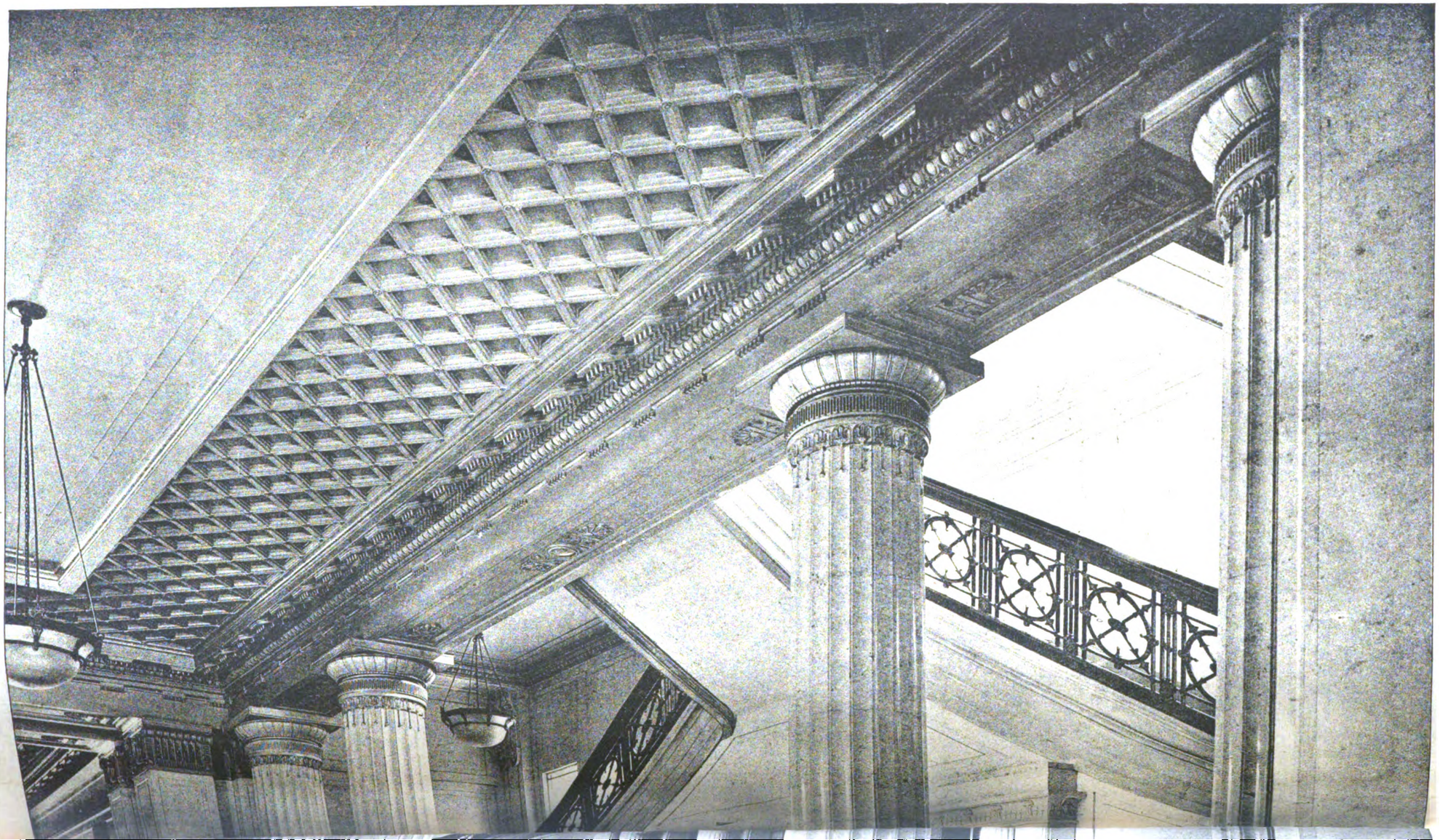
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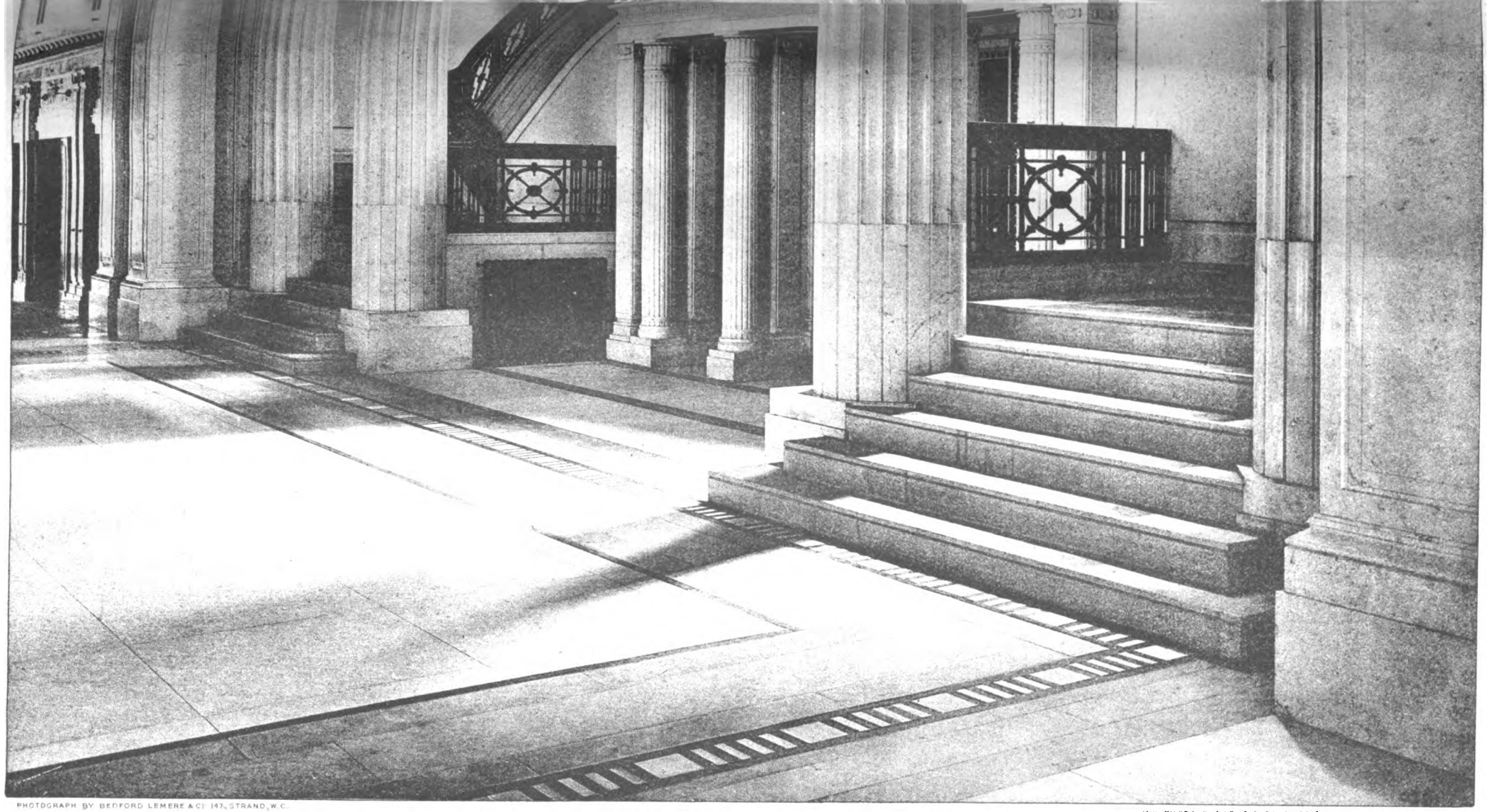
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THE NEW CUNARD BUILDING, LIVERPOOL. MAIN STAIRCASE.

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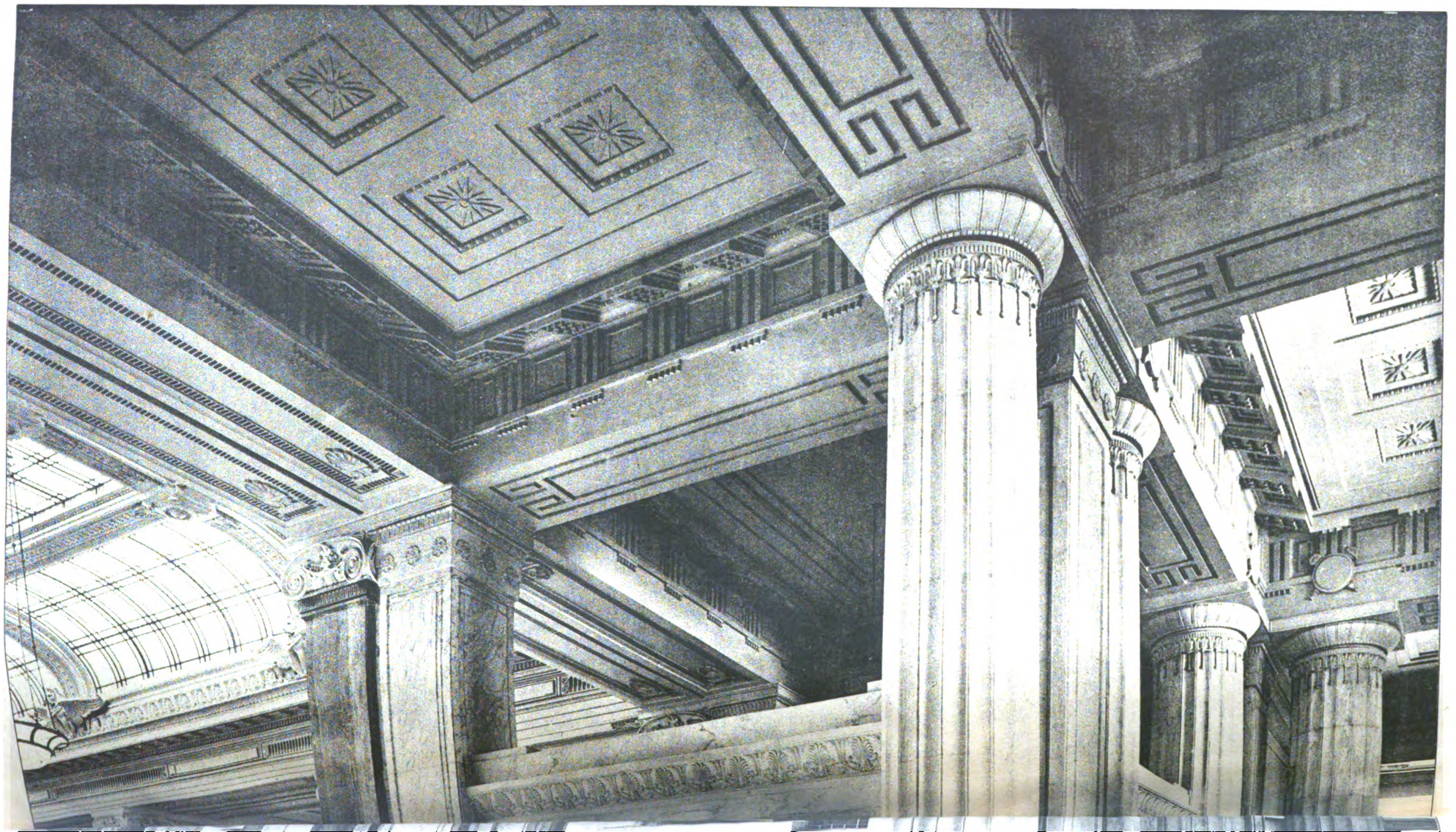
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THE NEW CUNARD BUILDING, LIVERPOOL. VIEW IN WEST HALL.

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on with main-line communication. It might be a very dangerous precedent if they simply put down the lines of main roads and left these other matters to future legislation. As regarded road conferences and rearrangement of boundaries of local authorities, coming from the most difficult portion of the kingdom to town plan he could heartily re-echo the proposals as to the reshuffling of the local authorities. In South Wales a stream was generally the boundary between two local authorities, and it was hopeless to expect any town planning in the valleys as long as this obtained. Until the boundaries were fixed on the watersheds it would be impossible to get anything done at all. Some of them in South Wales had been thinking out these problems, and they had proposed at a conference organised by Mr. Aldridge that the Local Government Board should inaugurate a series of conferences in South Wales on similar lines to the conference held in London. The industrial problems were distinct from most other parts of the country, and they felt there was a real need for such a getting together of the various County Councils and other authorities. The proposal as to a Town Planning Commission he felt was a very sound one, because nothing short of some kind of Commission with Government authority behind it could, he thought, "fill the bill." He found in his own practice extreme difficulty in making any suggestions to local authorities without appearing to give offence. Whilst throwing out hints of willingness to help it was difficult to convince an official of a local authority that there might be points on which an outside body could help where the officials working out a problem in a particular district were limited. It did seem to him that a Town Planning Commission would be able to help in that direction as it would have a technical authority behind it and also have the necessary Government authority. He could speak with personal knowledge as to the interest of working men in this problem. The keenest people in South Wales on town planning were the labour members of the local authorities. If they could show the trade union leaders that they had a particular, vital interest in this matter and that town planning was not a science which concerned only a few officials and architects, he was certain the result would be very valuable indeed.

Professor Abercrombie said it had given him the greatest pleasure to hear the author's recommendations and suggestions, and particularly the one with reference to a Commission on Town Planning with a view to education and such like things. One felt that there was a great deal in that. There were two schools of town planning in this country at present, and he understood there was probably a third going to be established somewhere in Wales. If this could be helped in any way by a Commission so much the better. One felt that the inducement for people to come and study town planning at present was not sufficient. Although members of local authorities might desire to study the problem there was not sufficient encouragement for the free lance. He would like to correct the impression given by Mr. Wellbye that town planning was not broad enough in its basis. One had only to study the Transactions of that Institute to see how extremely broad they were. He did not think there was any aspect that they did not touch upon—arterial roads, housing, everything came within their scope. In fact they might be accused of being so wide that they were almost dilettantes. But they did attempt to cover the whole field and arterial roads in their widest aspect.

Mr. Rees Jeffreys in reply said he wanted to get a step forward. They would have to spend millions to build these roads simply because their forefathers would not take the advice of Wren and others who planned out London wisely. They had no more reason to suppose that they would get these arterial roads than they had seventeen years ago. In fact, he had more hope seventeen years ago than he had that day. But he would still fight on in the hope of getting them. But if they asked him in his cold-blooded moments when the imaginative man in him was weighed down by the cold-blooded business man he would tell them that he was less inclined to back arterial roads than he was seventeen years ago. In his view the one hope was a central authority with powers and initiative and a little money. He was glad to see that his suggestions under that heading had on the whole been very favourably received. They must get a Town Planning Commission with some money at its back to organise and plan and employ men and give inducements to people to study the question. If they could do that and get some money which the Commission could use as grants in aid they might get something done, but if they left things to go on as they were it was hopeless to expect much.

He felt that the most hopeful thing to do was to try and induce the powers that be in the effort at reconstruction which was bound to follow the war to appoint some central authority composed of the right men. If they could do this town planning, arterial roads, housing, and all these things would go forward in a way that would fulfil their wildest dreams.

Further discussion was adjourned till June 1.

THE SURVEYORS' INSTITUTION.

THE following Students have been successful in passing the Intermediate Examination at the Professional Examinations, 1917:—

Cecil Burkitt, Nicholas Henry Nelson Darby, George Frank Edwards, Alan Charles Golding (special prize), Arthur Harold Halls (Institution prize), Hugh Herington Ingleby, Cecil Kennard, Victor Russell Westrope.

The following non-students have been successful in passing the Intermediate Examination:—

Charles Anthony Ash, William George Austin Clark, Henry Colbeck, A.R.I.B.A. (Building prize), Charles Harold Read Davis, Simon Evans, William Henry Forder (Beadel prize), Richard Jackson, John Lowe, Robert Gerald Hustler Newbigging, John Owen Parry (Penfold silver medal and Driver prize), Benjamin Grant Robinson, Henry Cecil Rudkin, Alfred Ernest Shaw, Leonard Joe Taylor, Thomas Percival Tinsley, Norman Wailes, Donald Warder, Robert Alexander Mitchell.

The following candidates have been successful in passing the Final Examination:—

George Henry Allison (Quantities prize), William Wellington Berry (Galsworthy prize and Mellersh prize), George Godfrey Bourne, Ellis Samuel Driver, Richard Edwards, Charles Glossop Else, Thomas Phillip Francis, Daniel Griffiths, William Keay, Ernest Stephen Purry, Ernest John Rees, John Seymour Rutherford, Denis Charles William Sanders, 2nd Lieut. R.F.A.; Charles Hedley Wastell, John Caffin Wheeler (Penfold gold medal), Frederick Willey, Gwilym Williams, John Henry Wilson (Crawter prize), Thomas Adam, Joseph William Geddes.

The following candidates have been successful in passing the Direct Fellowship Examination:—

Frederick Percy Dolamore, Francis Tippett Howes, Noel Dennis Sheffield, Arthur Lloyd Thomas, David John Williams.

THE Royal Society of Painters in Water Colours has elected Mr. E. A. Walton, President of the Royal Scottish Society of Painters in Water Colours, an honorary member, and Lieutenant W. Russell Flint, R.N.V.R., a member.

A MEMORIAL window has been placed in Yeovil Parish Church to the memory of two distinguished officers—Brigadier-General C. B. Prowse, D.S.O., who died at the head of his brigade in the first battle of the Somme, and Captain Cecil Irby Prowse, R.N., who went down in his ship, the "Queen Mary," at the Battle of Jutland.

AT St. John the Baptist's, Penshurst, on Wednesday, the 9th inst., a service was held for the dedication of a screen presented by Colonel Viscount Hardinge and Lord Hardinge of Penshurst (ex-Viceroy of India) as a memorial to their sons, Second-Lieutenant the Hon. Henry Ralph Hardinge, of the Rifle Brigade, and Lieutenant the Hon. Edward Charles Hardinge, D.S.O., Hussars, who were killed in the war on May 9, 1915, and December 18, 1914, respectively.

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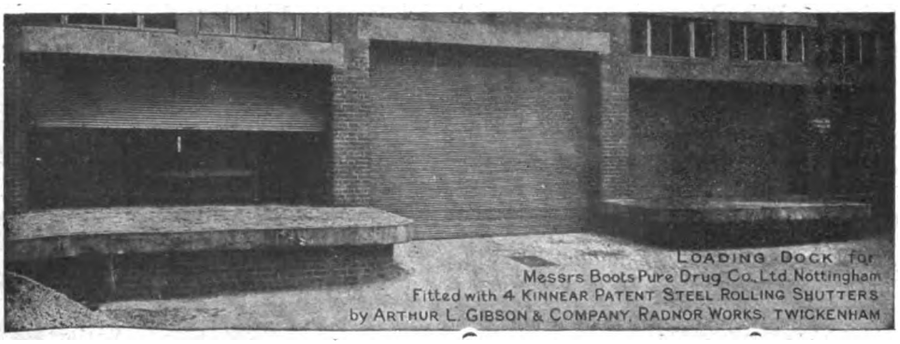
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Correspondence

[The Editor will not be responsible for the opinions expressed by Correspondents.]

National Housing Policy

SIR,—In your issue of April 27 you have a leading article on the National Housing policy, in reference to the work being done by the National Housing and Town Planning Council. In your third paragraph you refer to the National Housing and Town Planning Council being the chief agency for the promotion of public utility societies, and in a better position than anybody else to give answers to the question of the alterations necessary to enable public utility societies to exist and flourish after the war.

May I point out that there is some little confusion here? The Garden Cities and Town Planning Association is the recognised body for dealing with public utility societies, and to-day practically every housing public utility society in the country is affiliated. There are over seventy of these societies, which have their own committee meeting here regularly, and this committee has for nearly two years now been engaged on the problem which you say ought to be faced, and they have, at their meeting on Friday last, actually formulated their complete policy on the lines which you suggest should be done. This will be laid before the proper department as early as possible.

Our friends of the National Housing and Town Planning Council—between which body and our own I am glad to say the most cordial co-operation exists—support the policy of public utility societies in general, but the work of the formation of these societies, and the presentation of their case, is essentially the work of the Garden Cities and Town Planning Association.

May I further point out that on October 20, 1916, you published a lengthy article by myself on the various changes which were necessary? This statement summarised the conclusions arrived at by representatives of the whole of the public utility societies, and was approved by them in conference in the early days of that month.—Yours, &c.,

EWART G. CULPIN, Secretary,
Garden Cities and Town Planning Association.

May 3, 1917.

[Mr. Culpin belabours us for saying what we did not say. We spoke of the National Housing and Town Planning Council as being "interested particularly . . . . in the promotion of public utility societies," not as the "chief agency" for their promotion. As the Council refer in two out of three of their "agencies that should be called on to use loans from the State" to the operation of public utility societies it is scarcely questionable that they are "interested particularly" in these organisations.—ED.]

THE church at Dongan, Holland, which contained among other art treasures some magnificent pictures by Vandyke and Rubens, has been destroyed by fire.

THE Bishop of Southwark dedicated on Saturday last a memorial tablet erected in All Hallows Church, Tottenham, in memory of Lieutenant W. H. E. Nield, elder son of the Recorder of York, Mr. Herbert Nield, K.C., M.P. for the Ealing Division of Middlesex, who was killed while leading his men on July 1 last year at the commencement of the great offensive on the Somme. The architect of the memorial is Mr. Maurice B. Adams, F.R.I.B.A.

AT Bangor Cathedral a stone tablet has been erected to the memory of Lieutenant James Trevor Crawley Vincent, of the Welsh Regiment, only son of Mr. and Mrs. H. C. Vincent, Bangor, who at the age of nineteen years was killed in May 1915 while leading his platoon against the German trenches at Richebourg, St. Vaast. Lieutenant Vincent was a great grandson of a former dean of the Cathedral. The stone was quarried from his home at Treborth.

BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders, the address is, as a rule, local.)

ENGLAND.

DEVON.

Torquay.—Proposed Technical School, Upton Vale.

KENT.

Tilmanstone.—Miners' cottages.

LANCASHIRE.

Blackpool.—Holy Trinity Church, South Shore: proposed Sunday-schools.

Rawtenstall.—V.A.D. Hospital, Newhallhey: enlargement.

Westhoughton.—One hundred Council houses.

MONMOUTHSHIRE.

Monmouth.—Bacon factory for Mr. Partridge.

NORTHUMBERLAND.

Wallsend.—Premises, corner of Headlam Street and Western Road, Willington Quay, for Messrs. R. Hood, Haggie & Son, Ltd.

STAFFORDSHIRE.

Wednesbury.—The "Anchor Inn," Station Street, Darlaston: rebuilding.

WARWICKSHIRE.

Birmingham.—Proposed elementary school (for 400 scholars), Garrison Lane, Bordesley.

Proposed elementary school (for 400 scholars), Peel Street, Winson Green.

Coventry.—Proposed church, school, &c., Fife Road, for the Rev. H. M. C. Caffrey.

WORCESTERSHIRE

Kidderminster.—"Greatfield," Bewdley Hill: additions to Lodge for Mr. J. Humphries.

YORKSHIRE.

Batley.—Clerk Green Mill: extensions for Messrs. J. Auty & Co., Ltd.

Haworth.—Proposed Catholic Mission Church.

Hull.—Additions to works at Wilcolmlee and Wilmington for the British Oil and Cake Mills, Ltd.

Sheffield.—Additions, Princess Street, for Messrs. F. Banks & Son.

Additions, St. Thomas Street and Badger Lane, for the University.

Additions, Savile Street East and Princess Street, for Messrs. T. Firth & Sons, Ltd.

Addition, Watery Street, for the Masta Steel Works.

Additions, Warren Street, for Messrs. T. Andrews & Co., Ltd.

Workshop, Liverpool Road: addition for Messrs. Hadfields, Ltd.

Workshop, &c., Chippingham Street, for Messrs. Dunford & Elliott, Ltd.

Workshop, Warren Street: addition for the Tempered Spring Co.

SCOTLAND.

Aberdeen.—Electricity Works: extension.

Dundee.—"Ashcliffe House": Isolation wards (£1,500).

Dunfermline.—Proposed Institute, Rosyth, for the Episcopal Church of Scotland.

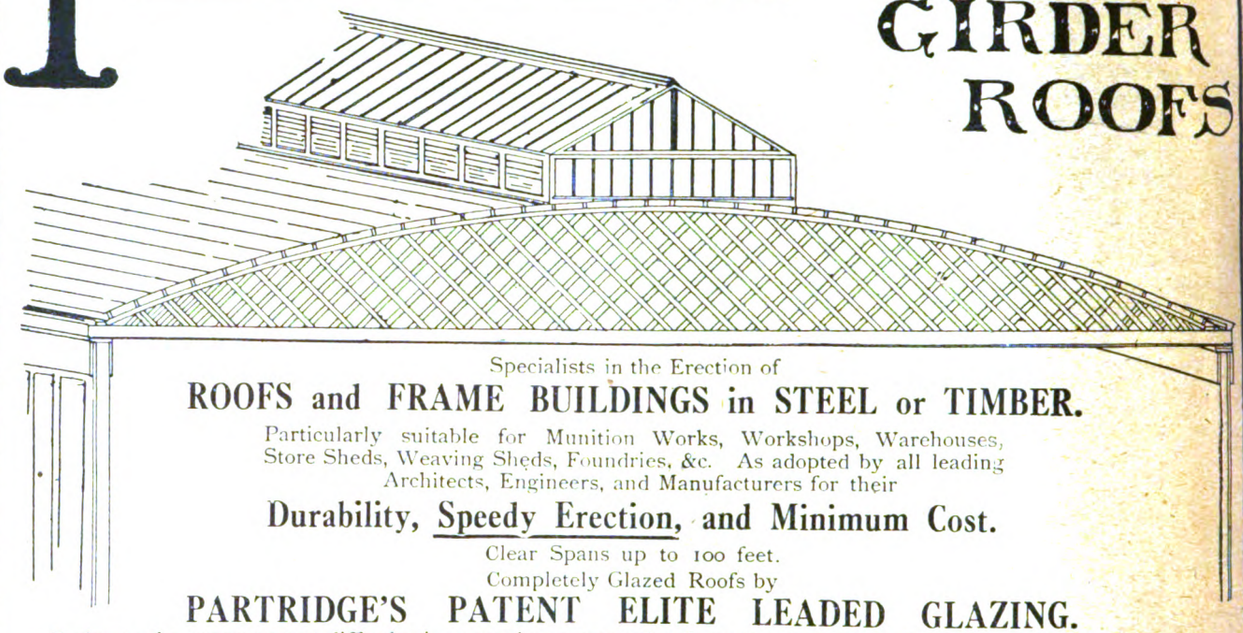
Edinburgh.—University: proposed Memorial Chapel (700 to 800 sittings).

Port Glasgow.—Proposed forty-six tenements (for 3,000 persons), Glasgow Road, for the Kingston Investment Co., Ltd.

THE Education Committee of the London County Council report, with pleasure, that the first prize, of the value of £5, offered by the "Safety First" Council for a design for badge, has been gained by a student attending the Hammersmith School of Arts and Crafts.

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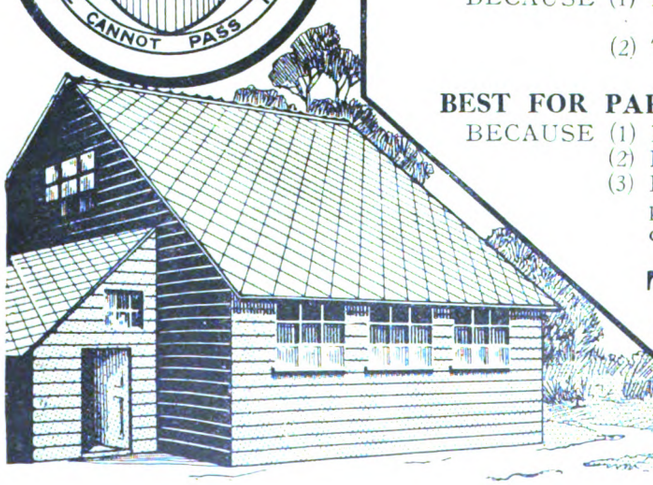
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FORTHCOMING EVENTS.

Saturday, May 26.

Edinburgh Architectural Association : Visit to Riccarton House, Currie.

Friday, June 1.

Town Planning Institute : Paper entitled "Draft Act, with respect to Planning and Regulating the Use and Development of Land for Building Purposes in Cities, Towns, and Rural Municipalities in Canada," by Mr. Thomas Adams, F.S.I., at 6 P.M.

Monday, June 4.

Royal Institute of British Architects : General Meeting.

The Surveyors' Institution : Annual General Meeting and Distribution of Prizes, at 5.0 P.M.

Wednesday, June 6.

Royal Archæological Institute :

Saturday, June 9.

Edinburgh Architectural Association : Visit to Inveresk.

Monday, June 25.

Royal Institute of British Architects : Presentation of Royal Gold Medal.

Thursday, June 28.

Institution of Municipal and County Engineers : Annual General Meeting (three days).

Saturday, June 30.

Edinburgh Architectural Association : Annual Excursion to Dunfermline.

Wednesday, July 4.

Royal Archæological Institute :

ARCHITECTURE AT THE ROYAL ACADEMY.—III.

THE domestic architecture illustrated in the Architectural Room this year is excellent, both in quantity and quality, the latter characteristic being we may consider normal at the Royal Academy, as indeed without vanity we may take for granted in modern English architecture. The place of honour in this section is held by three frames of photographs contributed by Messrs. Romaine Walker & Jenkins, not Romaine, Walker & Jenkins as printed in the catalogue. "New centre to Garden Front, and Staircase Hall, Knowsley Hall " (1398). for the Right Honourable the Earl of Derby, K.G., &c., are shown in two photographs, one of the severely treated exterior in brick with stone dressings and square openings, surmounted by a straight parapet, partly balustraded and with a fine terrace approach, the other an interior view of the staircase hall with its continuous massive finely carved treatment of running scroll work and amorini. " Alterations and Additions, Buckland, Berkshire " (1400), for Sir Maurice Fitzgerald, Bart., Knight of Kerry, and Lady Fitzgerald, are shown in two photographs of the exterior, one labelled " Entrance Front from South-west, showing the alterations and new North-west Wing," the other " The House from the South-west, showing alterations of old centre block and new North-east Wing." This is clearly a little confusion in the description as the views are taken from opposed though not opposite points. Apparently octagonal annexes on the extreme flanks of the symmetrical composition are old work and the central portion of the house proper has been altered and extended. Doubtless the new design has been fettered by old work leading to the use of badly proportioned windows, which a " pediment and portico " treatment of the two upper storeys of the centre relieves, but does not mask. " New Staircase and Gallery, Painted Hall, Chatsworth " (1406), for His Grace the Duke of Devonshire, are illustrated by two photographs depicting a treatment of richly wrought metal balusters, one to a tread, with panels of fine design also in metal to the landings.

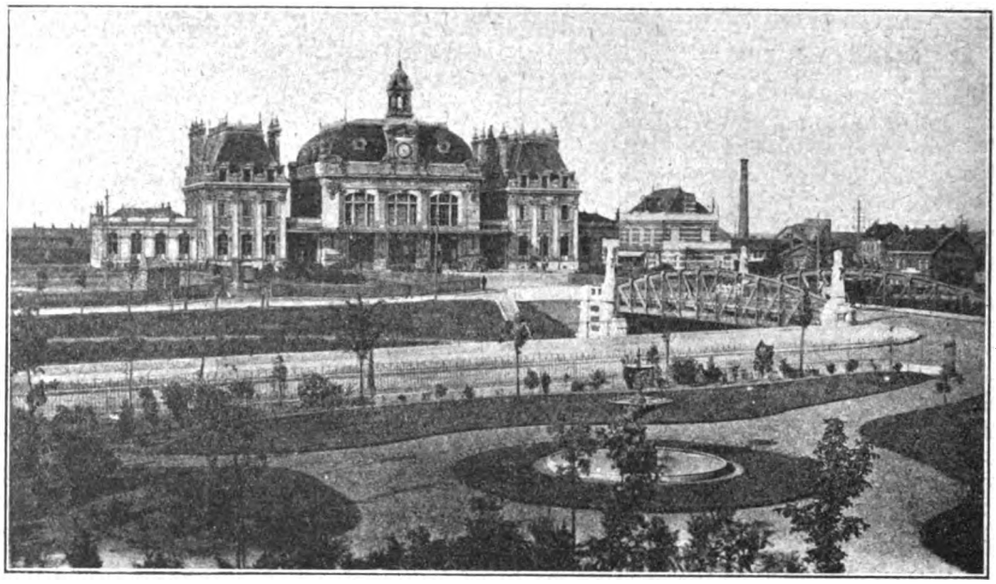
" House at Hampstead " (1401), by Messrs. H. V. Ashley & Winton Newman, includes three photographs of a very pleasant house which has been built a few years back in Bishop's Avenue, and, with simplicity for its dominant quality, includes some highly interesting treatment in its brick and lead detail. Mr. Edward B. Maufe has two views of a brick house in which not only has the texture of the general wall surfaces been well studied but brick is the material of mullions and jambs of the window openings—" Kelling Hall, Norfolk: garden front " (1397) and " Kelling Hall, Norfolk: entrance front " (1405). The former has its tile roof broken by bays and dormers, whilst a fountain and pool forms a feature in the foreground. The entrance front is treated with a group of small gables, the full effect of the play of which is ensured by the entrance drive being led around a slightly sunk circular formal garden. The whole concept is a masterly piece of quiet and effective design.

The only contribution by Messrs. Niven & Wigglesworth this year is a photograph of " An Interior " (1402), a piece of detail made up of Ionic columns and entablature, doorway and elaborate carving, a rich piece of work. " New Boarding House, Shrewsbury School " (1403), by Messrs. W. A. Forsyth & H. P. G. Maule, is a simply treated brick building with tile roofs, of which the chief merit is the quietude of its broad wall spaces. The pitch of the roof is just a shade too flat to be comfortable.

Mr. Edward Warren's " New Buildings, Balliol College, Oxford " (1404), shows a stone front in a severe renaissance treatment with mullioned windows. " Garden Court at Walhampton, Lymington " (1399), by Mr. Thomas H. Mawson, appears principally to be a study in colonnades for the architecture of which, quite correct and satisfactory, Mr. Prentice Mawson is responsible. Mr. Harold Trimnell's " Woodland Court, Amersham " (1393), is a well-grouped red brick house with projecting half-timbered bays, the merit of which is not sufficiently expressed by a very washed-out water-colour drawing.

Messrs. Tubbs, Messer & Poulter exhibit three of Mr. Briant Poulter's characteristic water-colour drawings illustrating their designs for " House at Woking " (1395), " Golf Club House, Kingsgate, Broadstairs " (1409), and " Hacketty Way, Porlock " (1411). The house at Woking is one of the typical country residences with which these architects have adorned this district of Surrey—a long and ample brown tile roof over a bright coloured tile-hung first floor and white plaster ground floor, at once picturesque, homelike and dignified. The golf club is a one storey building with white-plastered walls, tile-hung gables, and a roof that appears as suggested by the drawing to be in asbestos slates. A quite suitable treatment free from extravagance and yet pleasing. The Porlock house is finely situated on an artificial plateau on the hill-side, a stone built house suitable to the locality, with low mullioned windows and a tile roof behind a parapet. Quite a change from the Surrey type, but sensibly so. " Coldharbour Manor, East Grinstead "

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STATION, SQUARE, AND NEW BRIDGE AT SAINT OMER.

(1396), by Mr. E. Turner Powell, is a red brick house with tile roofs, quite good but not enthusing.

An archæological study in seventeenth-century architecture is to be seen in "Design for Restoration of the Old Palace and Bishop King's Palace, and Reconstruction of St. Nicholas' Church, Oxford" (1407), by Mr. Frederick T. Mullett. The half-timbered front with projecting oriels and gables is marred in effect by an incongruous gable end in stone, which robs the design of all coherence, and suggests that the front is but a piece of scene-painter's architecture. The church is so much in the background that at the height at which the drawing is hung it is difficult to appreciate the merit of its design.

"Garden House at End of Terrace, 'Foxbury,' Chislehurst, Kent" (1390), by Captain Maurice E. Webb, R.E., is a charming piece of garden architecture with its simple Doric order and stone slate roof. The realisation of Captain Webb's striking design, previously shown by drawings, is now to be seen in a photograph of "'Bassetts,' Farnborough, Kent: entrance front" (1417), and proves a satisfactory fruition. A well-treated house in rough cast with some nice banded brickwork to the entrance is seen in Mr. Sydney J. Tatchell's "Entrance and Garden Fronts, 'Wallingford,' Purley" (1392).

A successful piece of interior architecture is seen in the photograph of "Drawing-room, Framingham Hall" (1389), by Mr. George J. Skipper, where the elements of effect are a semicircular end broken by a rectangular projecting fireplace and Ionic columns leading to an extension of the room. "Lloyds Bank, Andover, Hants" (1385), by Mr. Horace Field, is a quite ordinary and innocuous renaissance façade.

A pen and ink drawing shows the design by the late Lieut. Philip E. Webb, R.E., for "Hockley Sole Manor, near Folkestone: alterations and additions" (1387), which is virtually in character a bungalow, with a large hall running up through two storeys. The house appears to be in rough-cast plaster with mullioned and transomed windows, whether in stone or timber is not clear, and tile roofs and gables. Mr. Philip Tilden's "Study of Entrance to a Country House" (1386), is a large scale pen and ink perspective of a design based upon Italian and French renaissance motives, where the ground floor windows are small and high up, with elaborate iron grilles, and the remainder of the façade is a piano mobile with balustraded attic. The "entrance" may be either the gateway with piers or the doorway with its pedimented head. It is an interesting study, but the details need some refining.

Mr. Baillie Scott sends a frame of four charming sepia photographs of "'The Cloisters,' Avenue Road, Regent's Park, N.W." (1384), a house in Tudor manner with an old-world garden to its diapered brick "Garden Front." The "Hall" is lofty, with internal half-timber treatment, the "Dining-room" and "Dressing-room" have low panelled walls, and the latter a modelled plaster fireplace and ceiling. Mr. Scott sends also another frame with four photographs of "Burton House, Sherborne: interior and exterior views" (1369), a stone-built Tudor house with stone slate roof. Internally, ceiling-beams and plastered walls with wide, wood-burning, open fireplaces in stone, the "Study" compromising with modernity by a dog-grate and metal hood.

NOTES AND COMMENTS.

IN a public meeting recently held under the auspices of the Dundee Trade Council, Mr. James Thomson, the City Architect and Engineer, gave an address explaining the scheme for Dundee housing with which we dealt a few weeks since. Criticism was invited, and some of the points raised showed the lack of knowledge on which opposition is so often founded in local governing bodies when improvements are mooted. For example, objection was raised to the cost of the proposed houses on the ground that cheaper houses have been built in England. That is, the efforts of jerry-builders in the creation of slums were advanced as a criterion of houses which to obtain a Government grant must be constructed on a basis of a sixty years' life. Radiators were considered an unnecessary extravagance, although their value as an economy to the occupants should be a sufficient justification. On the other hand, internal lobbies or corridors were asked for which would increase expense, as well as labour to the tenants, and destroy one of the best features of Mr. Thomson's planning—compactness. Baths, too, some thought should be provided in the houses and not in a separate building on each estate, oblivious of the uses to which they are often put in poor folks' tenements. Not unnaturally, Scotland was considered unfairly treated with a grant of 25 per cent. of the building cost when Ireland gets 36 per cent.

Sheffield, like many other of our provincial cities, is faced with an acute housing problem. Mr. Purchon, Lecturer in Architecture at the University of Sheffield,

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puts the requirement in any comprehensive scheme for the city at 40,000 houses. This, of course, means extension and traffic problems. Mr. Purchon's suggestion is for tube railways in preference to motor-'bus services and tramways. Mr. Wigfull combats this on the ground of expense from the rocky nature of the subsoil and the steep gradients. What is quite clear is that a comprehensive town-planning scheme for the future development of Sheffield is imperative.

The Birmingham Architectural Association have rightly followed the lead of the R.I.B.A. and approached their local rulers, and a deputation, including Mr. A. Harvey, the president, Mr. W. H. Bidlake, Mr. Joseph Crouch, and Mr. H. T. Buckland has been received by the Town Planning Committee of the Birmingham City Council, for the purpose of laying before them certain proposals showing how the local architects could assist in the formulation of town-planning schemes.

It was pointed out that on the Continent and in America architects were always consulted by the local authorities when town-planning schemes and city developments were under consideration, and that there were three kinds of work in regard to which the profession could render assistance—viz., town planning in the suburbs, reconstruction in the centre of the city, and housing. At present architects were only able to come in and criticise a scheme when most of the work had been done. They asked that, if possible, the members of the profession should be consulted at an earlier stage, and said they would give any help they possibly could.

We are pleased to learn from New Zealand that Mr. Frank Peck, F.R.I.B.A., whose work in England we have repeatedly illustrated in "The Architect," has been entrusted with the design of a new Presbyterian church at Motueka. The New Zealand paper gives an account of the laying of the foundation stone, which is of marble from the Takaka Hills, and was supplied by the Nelson Marble Company, of Motueka. It bears the following inscription:—"This stone was laid to the glory of God by the Hon. J. G. W. Aitken, March 21, 1917."

Professor W. Rothenstein, the recently appointed occupant of the new chair of civic art at the University of Sheffield, has, in response to an inquiry of the Vice-Chancellor, set forth his views on the scope of his work. In a very full document he intimated that he proposed to give, in the early part of next session, an inaugural address explaining the meaning and purpose of his work in Sheffield as preparatory to the actual course of lectures which would commence next October. He believed that the arts and humanities should receive more attention, and that their encouragement was essential to the public well-being. Hitherto the subject had been almost entirely neglected, except that art schools and picture galleries had been provided in order to pay some kind of tribute to its claims. Professor Rothenstein desired that definite training should be given to students gifted with the creative faculties to express in outward form something higher and better than that which appeared to satisfy our present industrial civilisation. It was to cultivate a more fruitful use of real talents which existed everywhere, it was towards a more generous attitude to other aspects of life than the merely commercial, that their work at the new Universities was being undertaken.

Professor Rothenstein desired that the great city should express itself in some ways through æsthetic beauty and dignity, and not merely by showing specimens of borrowed work in a gallery, but in its own living buildings, its furniture, crockery, metal-work, carpets, embroideries, plate, &c. The decoration of public buildings should be the work of local men, and not brought into Sheffield from outside its borders. Schools, hospitals, and churches should be decorated by local artists. Once a definite object was given to training in the schools of art, in a decade men and women would be able to perform these tasks for themselves in a way which their purely theoretical and often amateurish training did not enable them to do to-day. One wanted more creative life in our cities, and those who felt in themselves the stir of this spirit should have a fair chance of being allowed to develop their gifts to their own lasting advantage as well as that of the public.

Once such people were well trained, and their talents and utility acknowledged, private people would then also to their own advantage be able to obtain objects of use and ornaments made by them, and something like a real creative industry would be once more brought into being. Professor Rothenstein wished to introduce in our midst a living museum, showing, as a library did, the thought of our own as well as of other times, something of the best that was being produced to-day of the crafts in building, painting, and sculpture, with a vital and inspiring person at the head of it.

Professor Rothenstein also advocated the creation of the most fruitful and effective forms of war memorials, both by public bodies and great private employers, and to put forward various suggestions for these would be one of the chances the creation of that chair would provide at this particular time. Professor Rothenstein wrote that he was sensible of the faith shown in him by the University by his election to the chair of civic art, and that he would do his best to bring the claims of art and artists before this great industrial city as clearly as he could and in as practical a form as possible.

The decision of the Dean and Chapter of York Minster with regard to war memorials cannot but meet with general approval. Like most of our great cathedrals there is in the Metropolitan Church of the Northern Province but comparatively little space left for the erection of memorials and tablets, and, therefore, something more than mere local connection with the Minster would seem to be required before a proposal to make a permanent memorial within its walls is made. In so glorious a church nothing but the very best that contemporary art can produce should be allowed, and this means that any worthy monument will be very costly. Intensely interesting as the individual heroic acts of our men at the Front are to ourselves and to the present generation, it is doubtful whether anything should be publicly commemorated in the Minster which is not of sufficient importance to deserve and to evoke permanent and national interest. The Dean and Chapter feel that it is obviously unwise to fill up space piecemeal before they are in a position to take a comprehensive view of what will be required by way of commemoration of the thousands of officers and men of the North who have given their lives for their country. They are, therefore, not prepared as a rule to come to any decision about mural tablets or monuments till the war is over.

ILLUSTRATIONS.

THE NEW CUNARD BUILDING, LIVERPOOL.

IN this issue we complete our present series of illustrations of the New Cunard Building as carried out from the design of Messrs. Willink & Thicknesse and Messrs. Mewes & Davis. Previous views appeared in "The Architect" of May 11 and May 18.

LYCH-GATE FOR WOOKEY, NEAR WELLS, SOMERSET.

THIS gate was erected from the design of Mr. Frederick Bligh Bond, F.R.I.B.A., in 1916, being the gift of a private donor. It is constructed of seasoned pine, the timbers being "adzed" and treated with Stockholm tar, and the roof covered with oak shingles. The terminals of the main lintels and of the ridge piece are carved into projecting grotesque heads, and the general effect is slightly Scandinavian.

The lintel over the entrance bears the words "MORS IANVA VITAE."

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LYCH-GATE FOR NORTH CURRY, SOMERSET.

THIS design by Mr. Frederick Bligh Bond, F.R.I.B.A., has not yet been carried into execution, and probably will not be until after the war. It is intended as a gift by one of the same family who have also given the reredos which has recently appeared in this Journal.

The general style and treatment conforms with that of the lych-gate at Wookey.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

MR. A. W. S. CROSS presided on May 16 over the final conference arranged by the Royal Institute of British Architects, when the subject of "Co-operation in Design" was discussed.

Mr. A. R. Jemmett, in introducing the subject, said the existence of the Institute might be taken as evidence that they recognised the advantages of co-operation, but he suggested that their somewhat half-hearted co-operative action had hitherto been directed more towards safeguarding their material and professional interests than to evidencing their mental horizon and quickening their spiritual perception. The principle of intelligent co-operation between those concerned in actual building operations was now fully recognised, but the way in which this principle should be put into practice appeared to be a question on which there was more to be said. This was an important aspect of co-operation, but that to which he would draw attention was the need for closer and fuller co-operation between architects themselves during the conception and development of their designs before building co-operation had a chance to begin. More particularly would he point to the immense value of a real spirit of co-operation and mutual assistance, to its widening effect on the mental outlook, its stimulating effect on the imagination, and its general tendency towards raising the standard of architecture and the repute of those who practised it. The possibilities of this form of co-operation had not been sufficiently explored. This neglect might be partly due to racial characteristics, and partly to the fact that they were just emerging from a period of unrestricted individualism in design, and might be still susceptible to its influence. "Each man for himself and the devil take the hindmost," adopted as a rule of artistic conduct, created an atmosphere of mutual jealousy and veiled hostility in which it was actually possible to refuse to publish one's drawings for fear that others might learn something from them. Not so was knowledge spread and architecture advanced. What concerned them, however, was the lack of intelligence that failed to perceive that they were all members of the same body, and could not flourish individually unless the whole body flourished collectively, and that, if they failed to support the body, they themselves must ultimately perish. Granted that they now breathed a more congenial atmosphere, and that a more enlightened self-interest had taught them that they could best serve their own interests by serving those of the body to which they belonged, were they yet fully persuaded that the quality of a design was of more importance than its authorship? To those who still held the opinion that each man's design was and must be entirely his own, this question of co-operation might present some difficulty. The mere idea of a collective concept, or of co-operating to produce a concept, might suggest a paradox or a contradiction in terms. He believed it was Mr. March Phillips who pointed out that architecture was the most intellectualised of all the arts. If, bearing this in mind, and accepting the view that it was also a commercial product, expressing certain views of commercial life, they examined the nature of their work, the conditions under which it was carried out, and the mental processes involved, the difficulty might perhaps disappear; they might even arrive at the conclusion that no man's design ever was or could be entirely his own, or, to be more precise, that no architectural design ever was or could be the outcome of a single mind. Although, under the impulse to create, they might all visualise castles in the air, yet, as a matter of fact, such mental concepts rarely materialised. They might have the impulse and the vision, but not the opportunity. A procedure allowed to the poet or the musician was denied to the architect. He could only design the buildings that other people required, and he found his opportunity of self-expression limited by the fact that both the impulse to build, the nature of the building, and the germ of the idea for the design, originated with those who needed the building, and not from those who built it, as well as by the further fact that accommodation, site, cost, and so forth were all predetermined and presented to the architect as factors of a problem he was called upon to solve. Regarding their work from this point of view—the solution of a given predetermined problem—they might be disposed to admit that co-operation in its solution was possible. There might be buildings so small and so simple that the solution of any problem they presented was obvious, but there were others so large and so complex that it could only be arrived at slowly by analysis, leading to synthesis, a process of gradually building up or evolving a mental concept which must be not only complete in itself, but the one that presented the right solution of the particular problem in hand. When they considered the nature and the amount of the preliminary analytic work required before they were in a position to proceed to a synthesis, the danger of a premature synthesis under pressure of the time limit, the number of possible solutions which presented themselves, and the amount of judgment required to choose between them, they might be prepared to admit that co-operation was not only possible, but desirable. When they further considered the rapid advance of knowledge, the increase of the factors with which they had to deal, the new problems involved in the tendency to build even larger and more complex buildings, and to even bring whole towns within the scope of a single architectural synthesis, they might be willing to admit that co-operation was not only desirable, but necessary, if only by way of division of labour. The practical advantages of division of labour were obvious. Considerable progress had been made, particularly in America, by the association, in partnership or otherwise, of men of different aptitudes, each of whom specialised on his own branch of the problem; but he was more interested for the moment in those who combined to study every aspect of the problem together, and to produce a joint solution. When a group of men, sharing the same mental outlook or attitude towards their art, worked together to the same ends, they mutually strengthened, stimulated, and inspired one another. In the fire of inspiration personalities seemed to mingle, and melt, and fuse into a something greater than any one of them, a collective personality—the personality of the group. This joint personality appeared able to produce a complete mental concept and joint solution of the problem, which was not that of any one member of the group, which was different from that which any one member of the group would have produced alone, and which, in his view, might be, should be, and generally was better than that which one member could have produced alone. This suggestion of a collective personality might appear fantastic and quite unnecessary to those who held that a design must be the outcome of a single mind. They might prefer to take the view that any such group of men was sure to be dominated by one individual, the real creator of the design, to whom the others were merely assistants; and that any improvement in the quality of the design would be due to their influence—which seemed to point to the value of assistance, provided it was co-operative. They never seemed to have considered how far their work might be simplified, and its quality improved, by sympathetic and intelligent co-operative assistance. If they did not exploit their assistants, they continued to regard them too much as draughtsmen and too little as assistant designers. The study of completed results might be advantageous to the student, but it was not the same

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thing as watching and taking part in the mental processes whereby they were attained. The assistant, either as ghost or draughtsman, must disappear, to be replaced by the assistant architect, trained in the schools to co-operate, if they were to pass on their knowledge, build up a tradition of method, and arrive at that general mental outlook in common so necessary to the advancement of architecture. Possibly this brought them to the real reason why they did not co-operate more often. It was not because they would not, but because they could not. They had no traditional method of working and no mental outlook common to all. Small groups perhaps went the same way, possibly arm in arm, co-operating as they went, but these groups had not yet agreed on any one way in which they could all walk together. This way must be found, even if they all had to modify their aims, and trust less to their own unaided sense of direction in order to find it, for it was the way of progress by co-operation in design.

The Chairman said Mr. Jemmett had given them a considerable amount of food for reflection. With regard to architects sharing the same mental attitude producing the same mental spirit, Mr. Jemmett said it was unattainable unless they began by educating architects together. His own idea of the education of an architect was that he should receive his preliminary art training with painters and sculptors. If Alfred Stevens was right in his assertion that there was only one art, he did not think they wanted separate educational establishments until the students—whether architects, painters, or sculptors—were in a position to begin specialising in their own work. He did not think they would ever get unity in the arts until they educated their embryonic artists up to a certain point together. In a school of that kind they would have an interchange of ideas when the men were young. It was extremely difficult to work comfortably and profitably with a man one had met little before in one's life, and whose ideas might not coincide. If, for instance, they had to call in a painter or sculptor, naturally they would prefer to call in one of whose training and personal character and sympathies they knew something. They could not really get to know a man well if they did not meet him till late in life. Early youth was the time for the forming of friendships, and at such a period of life the mutual criticisms of the students would be of great value. Surely some day there would be a large school of national art, subsidised but not directed by the State. He thought something of the Beaux-Arts system was desirable in this country. There the students for the first two years worked together, and were imbued with the same ideas, and he thought on the whole it had been productive of good results.

Mr. H. V. Lanchester said the only qualification he felt for speaking was the fact that he was one of those architects who had worked persistently in collaboration with others. He had only worked in that way to a limited extent compared to the possibilities he saw in the future in that direction; but in so far as he had pursued that course he felt that both himself and those with whom he had worked had benefited very greatly. He felt there was considerably better hope for them in the future, and he trusted in the near future, with regard to preliminary training in their art. There was a good deal of confusion about art training altogether, and he would like to refer to a point of view put to him comparatively recently by M. Horta, who was given the control of the Beaux-Arts School at Brussels. He said he did not pretend to teach people art; but what he would like to do was to begin with people as young as possible, and teach them to observe, and if they grew up seeing everything possible to be seen, then if they had any artistic quality at all it would come out. But it seemed to him (the speaker) that when a man had got some way on that programme an architect had got to go a great deal further. He had the communal basis of his work to consider. That work had generally some utilitarian purpose to serve, and it had to express that purpose in a beautiful way and in a rational way. When they came to these things it was a very difficult task to most of them, and they had been trained in such a haphazard way. They knew there was something at the back of it, but how was it to be expressed? He candidly admitted that sometimes one did a thing and put it into brick and stone, and knew afterwards that it was off the track. If they first got observation to train one's idea of beauty, and, secondly, the logic to express one's ideals of need, one would not get so frequently off the track. If they did this preliminary study together they would be able to see things more and more in the same way that they did now. In an average competition in England, they saw in nine cases out of ten that the designs had gone off the track, and the only thing to do was to pick out the design which had gone least off the track, and hope that the man who had had the faculty of getting nearer to the solution than the others would, when he carried out the work, be able to get a little nearer still. Supposing, however, they had the basis of the knowledge of how these functions were to be logically and beautifully expressed, they would be able to see much more what their fellow-artists were driving at; and they would have a consensus of opinion as to how the right solution had been arrived at. Even with their present defective faculties—they must all recognise that, owing to the lack of exercise in youth of their faculties with regard to the special functions of their profession, they were defective—they would be able to form something by co-operation with each other in regard to design, and particularly in regard to the higher interpretation of the expression of needs in terms of beauty. Another advantage in such a system of co-operation would be the definite continuity in tradition. Now they saw that even their best men seemed to leave no school after them. Perhaps there had been one or two men working with them who had benefited by their brilliance and highly trained intellect; but if these best men had had others more or less sympathetic in their attitude, in close contact and working steadily with them, and these men remained together, and only chose a newcomer into the group who was in sympathy with their method, then they might almost expect to see a continuity from generation to generation, carrying on a very high tradition. He thought they should organise their work so as to get the best out of the men at their disposal and get better work all round.

Professor Lethaby said he felt sympathy with Mr. Jemmett and with Mr. Lanchester's modest speech—a modesty he would like to share if he could. Of course what they might call group sympathy (and the bigger the group became the better) was an enormous thing. All productive work in any school of literature or new movement in thinking had come from what they might call group sympathy, but Mr. Jemmett seemed to suggest a little more. He suggested what he might call a sort of committee architecture, and that seemed a little impracticable. Discussion certainly on equal terms, but not authority. It seemed to him there must be a captain of the ship, and committee architecture, apart from group sympathy, seemed to him impossible. Co-operation by men of diverse gifts seemed to him most practical, and indeed absolutely necessary in big buildings and complex problems. Until they got into the habit of real association in producing big works they would not move very far. If he might raise a little cavilling personal note, he would point out that they were beginning to talk a new cant language which had more or less cropped up there. This talk of "concept" and "solution of problems" and "expression in terms of beauty" sounded awfully well, and it was difficult for the ordinary person to know what was meant by it, and secondly, what did it all amount to? He did not know what was a "concept." He did not know of any modern building in which this wonderful expression in terms of beauty took place. Why confuse themselves with this very grand language? The people who did the work of the world, the doctors and scientific men and engineers, did not talk language of that sort. It was time they dropped it, and until they did they would only build up artificialities which would betray them.

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Mr. Lanchester said there was something difficult to express in other words. Speaking for those who had been working more or less on what they called the atelier, he supposed they had got in the habit of using those terms. In England they failed relatively in putting into concrete form the expression of purpose and intention of a building, whilst it appeared that in some of the Continental schools they had more or less given their students a lead in the methods—in short cuts, as it were—to get this expression in the character of the plan and the massing and the treatment of a building. They seemed to have got in some way or another a sort of recognised system of expressing the disposition of component parts of a building and the character of mind men should be in while in a building of a certain class. In this country it was recognised in their churches, and there was a certain dignity and restraint; but they did not seem to have recognised it in other buildings. On the Continent there was a sort of basis on which a man after one stage in his career can begin to realise that he had to think first of the functions for which the building was to be used before he attempted to design and make the building an architectural conception.

Mr. Robert Atkinson said he thought exactly on the same lines as Mr. Jemmett, and was much interested by Professor Lethaby's talk on sympathy. He was glad Professor Lethaby agreed with group sympathy, because a few years ago that seemed to be scorned. People seemed to think that if everyone was trained up in the same mould or school individualism would be killed. That feeling, however, seemed to have died a natural death, and now they considered it an advantage that people should think in the same direction, and in connection with that would come co-operation. He did not think he liked committee architecture, for there might be jealousy and they might not get the best work, although in theory they ought to. It seemed to him that design must begin from the tradesman's point of view—if it did not fit the purpose, it was a useless piece of architecture. He was glad to see they were getting on level lines and trying to get more co-operation than individualism. After all, they came back to the root of the problem, and that was education, because co-operation must be fostered by education, and it was the only way in which it could begin. The more architectural education expanded the more co-operation would come about, as men would meet in schools and form friendships.

Mr. Barclay Niven said he did not think that as architects they came sufficiently in contact with painters and sculptors, or even in contact with their clients, in the way they ought to. They had their own ideas, and too often forced them down the throats of their clients. After the war they must be more in touch with life than formerly, and that would benefit them all round. If they could get painters and sculptors to attend future conferences which might be arranged it would be a good thing. Co-operation was in the air, and it was not merely a case of working in partnership. In America they had gone in a good deal for co-operation, and there they found architects combining with engineers and even with lawyers. In London, where the difficulties were so great, he thought it would be a good thing for an architect to have a lawyer for partner sometimes. Manufacturers in the country were thinking a great deal about co-operation, for they realised that businesses could not be conducted in the future as they had been in the past; and Mr. Lloyd George had told the Labour Party that there must be audacity, and that many things they had been afraid almost to mention in the past would be perfectly possible. Of course co-operation sometimes only meant compromise, and when two men working together each had strong ideas, it was not always a source of strength; there was levelling up, but also levelling down. Critical faculty was a very good thing in many ways and came up in co-operation, but sometimes it was dangerous. A man of ideas might be bowled over by criticism, and, although he might allow that logically the criticism seemed right, yet at the same time he felt of his own intuition that there were two sides to the question. Mr. Atkinson spoke of education being the necessary foundation for everything, and there was no doubt that the standard of artistic education in this country had been very low. Of course groups of men working together did influence one another, and sometimes their tastes got wonderfully in common.

The Chairman asked if Mr. Niven would consider it a good thing for them to work together if brought up in different schools of architecture.

Mr. Niven said he thought they were bound to come together.

Professor Lethaby said the French carried forward a great body of tradition in their architectural work. He thought they were both the greatest, and, in a sense, the most backward in the world now. They carried forward this wonderful body of experience in all their work, but along with the greatest skill and attainment in the world they were to him the weakest in æsthetic doctrine of any. That was partially because they had never as yet been broken up as this country was by the so-called Gothic revival, nor had they gone through a stage of scepticism such as the English, the Germans, the Belgians, and even the Americans had more or less. The Belgian professor Mr. Lanchester spoke of could not have talked about "concept." The French were at once enormously in advance and carried forward this tremendous body of splendid tradition, but alongside of it they had a body of inconceivable architectural twaddle. He considered these things should be approached as they would approach the building of a battle ship. They were not doing anything because they did not look practically at the problems. Had they considered cottage building during the last 100 years they might have been able to build a cottage in this country, which they were not able to do. With all this squabble about architecture, no one could build a cottage or a small house.

Mr. Jemmett said his underlying feeling about it all was that the great buildings they admired, such as the Parthenon, expressed a sort of group personality, not individuality.

The Chairman remarked that the subject was a very comprehensive one and they had only talked on one part of it. There was also the question of the co-operation of the architect with the constructional engineer, and other things.

THE ROYAL SANITARY INSTITUTE.

SIR HENRY TANNER, C.B., I.S.O., F.R.I.B.A. (Chairman of Council), presided at a meeting of the Royal Sanitary Institute, held at 90 Buckingham Palace Road, S.W., on Tuesday, May 8, when Mr. C. H. Cooper, M.Inst.C.E. (Borough Engineer of Wimbledon), opened a discussion on "Collection and Disposal of House Refuse." There was a large attendance.

The Chairman observed that the subject was one of considerable importance to the local authority, and also to the individual. The discussion came at an opportune time because the Local Government Board had just issued a circular in relation to the subject. Sir Henry presumed that the general difficulty was accentuated by the want of labour, and a great deal might be done by the individual in destroying a lot of refuse instead of storing it for it to be carted away. The Birmingham Corporation had issued a list of useful directions on the subject. It was stated that the domestic refuse collected in the city of Birmingham exceeded 700 tons a day, and that if every householder reduced the refuse thrown into his or her dustbin by 1 lb. a day (only 7 lbs. a week) the reduction throughout the city would exceed 30,000 tons a year, which would make possible a saving of over £13,000 a year.

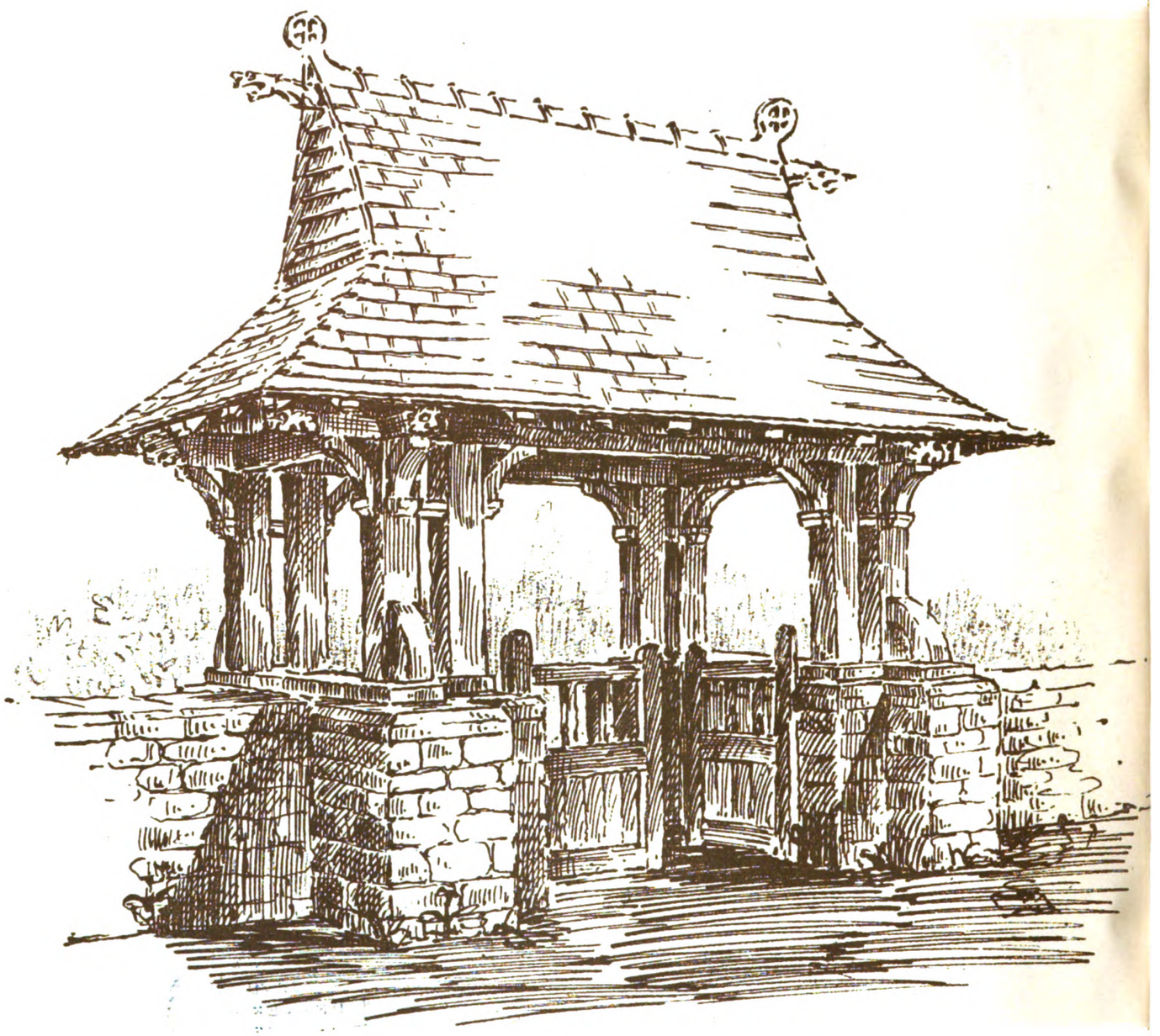
Mr. Cooper, in introducing the discussion, said:—

We live in the most productive age of discovery and progress that has ever marked the history of this world. But if a Londoner who departed this life 100 years ago were to return to town he would find one, and only one,

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NORTH CURRY CH: SOMT:
Sketch for Proposed LYCH-Gate.

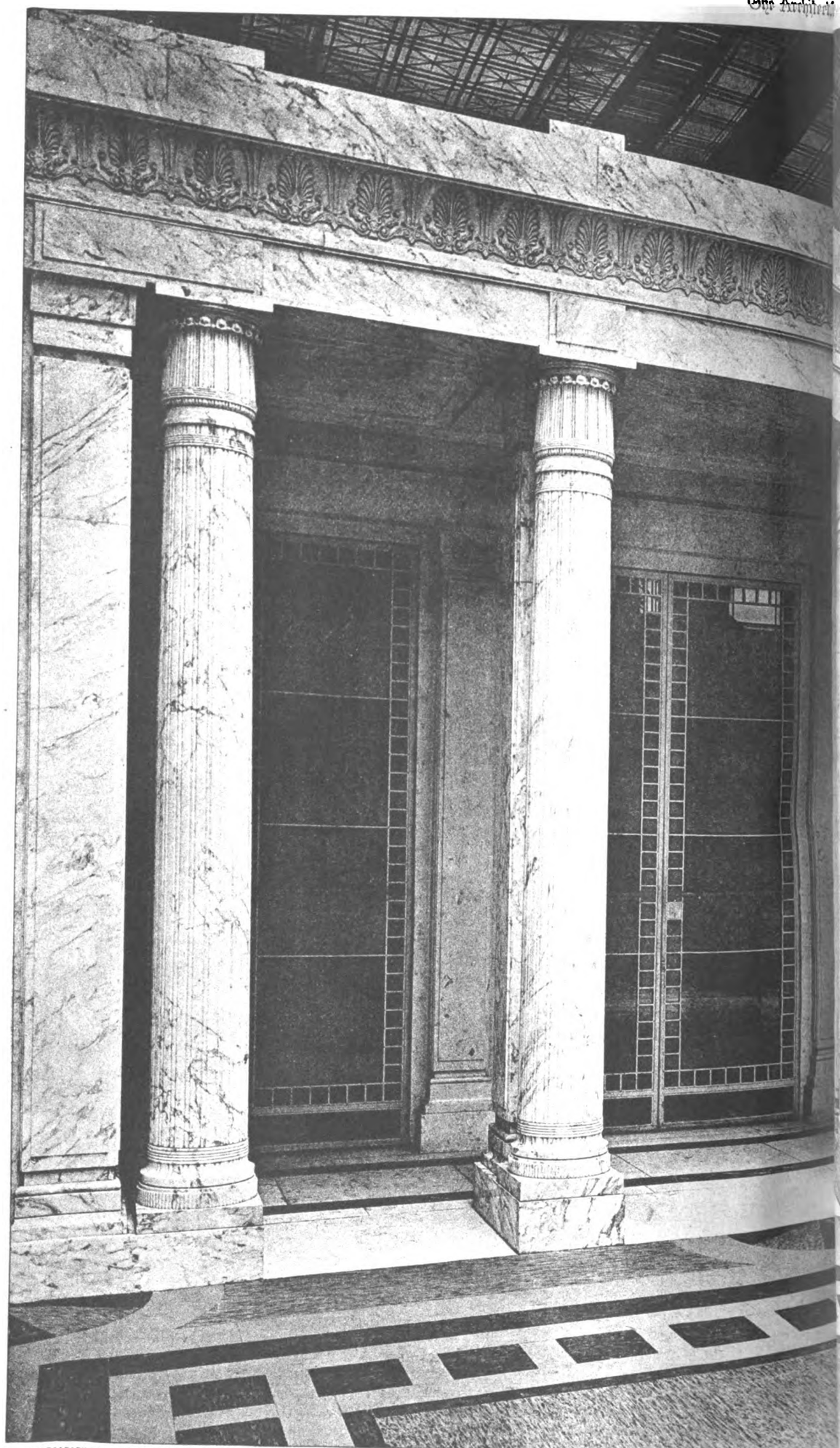
MR. FREDK. BLIGH BOND, F.R.I.B.A., ARCHITECT.

PHOTO-LITHO SPRAGUE & Co LTD 69 & 70, DEAN STREET, SOHO, W

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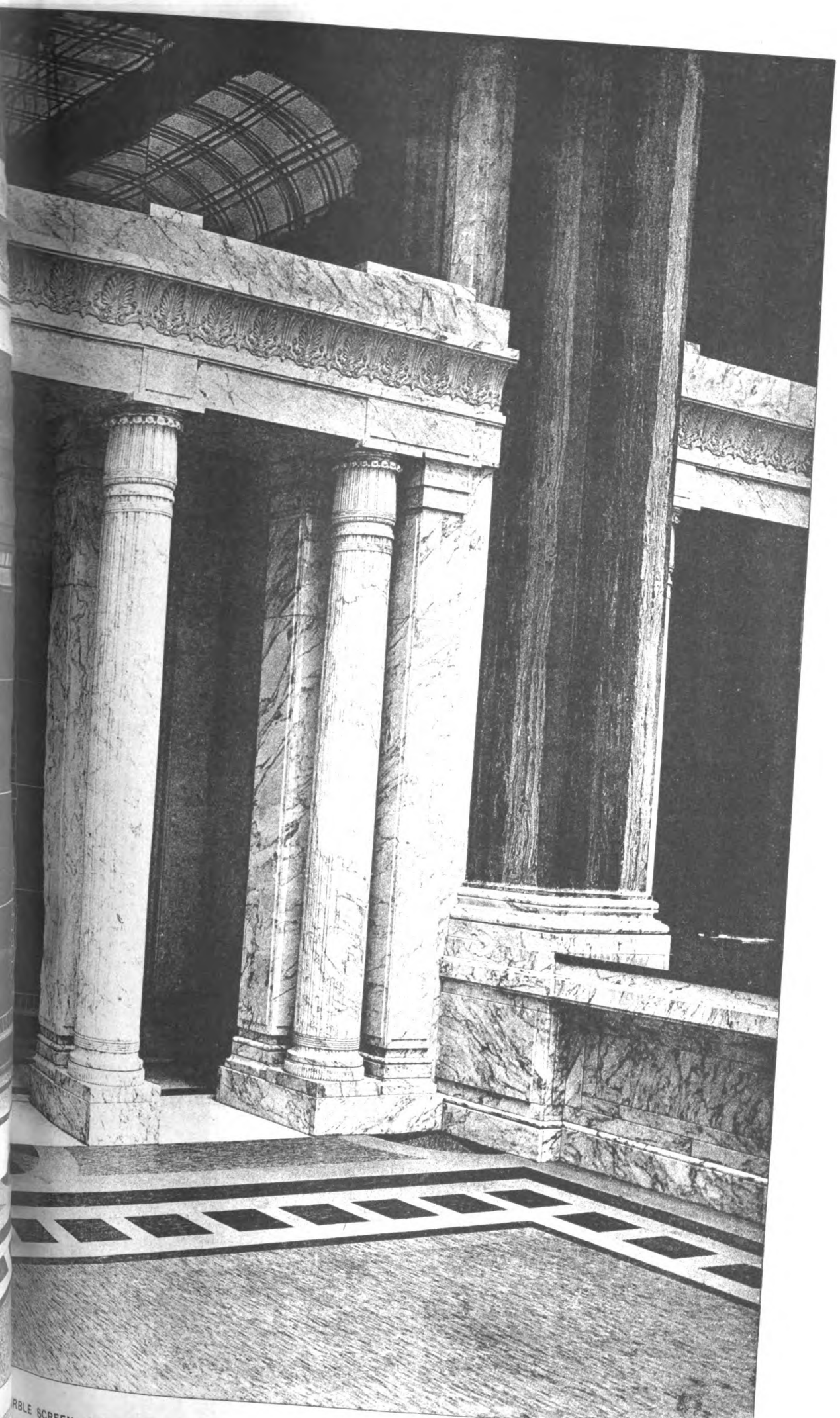


PHOTOGRAPH BY BEDFORD LEMERE & CO. 147, STRAND, W.C.

THE NEW CUNARD BUILDING, LIVERPOOL.

Messrs. WILLINK & THIC

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RBLE SCREEN, ENTRANCE TO MAIN OFFICE.

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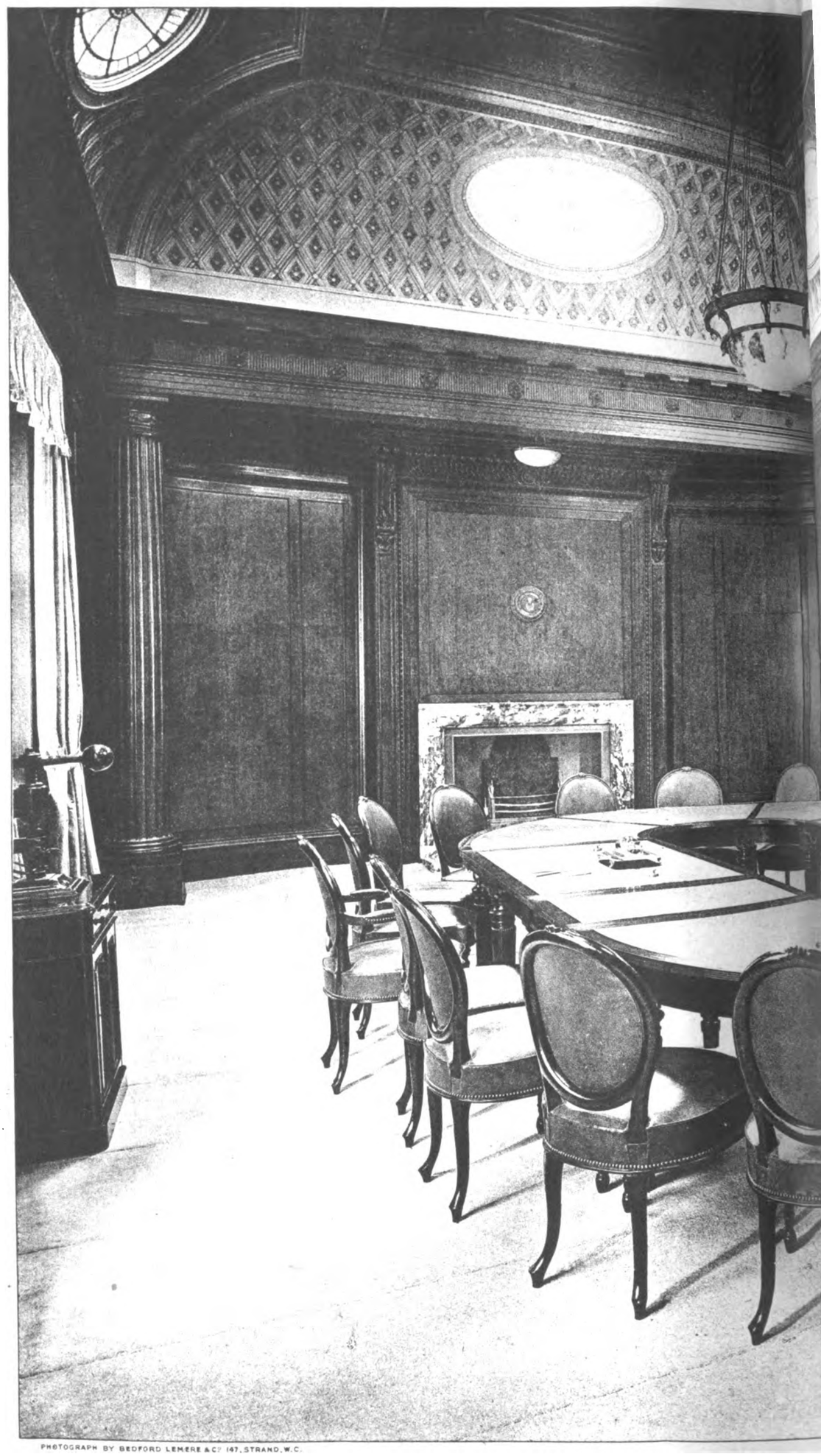
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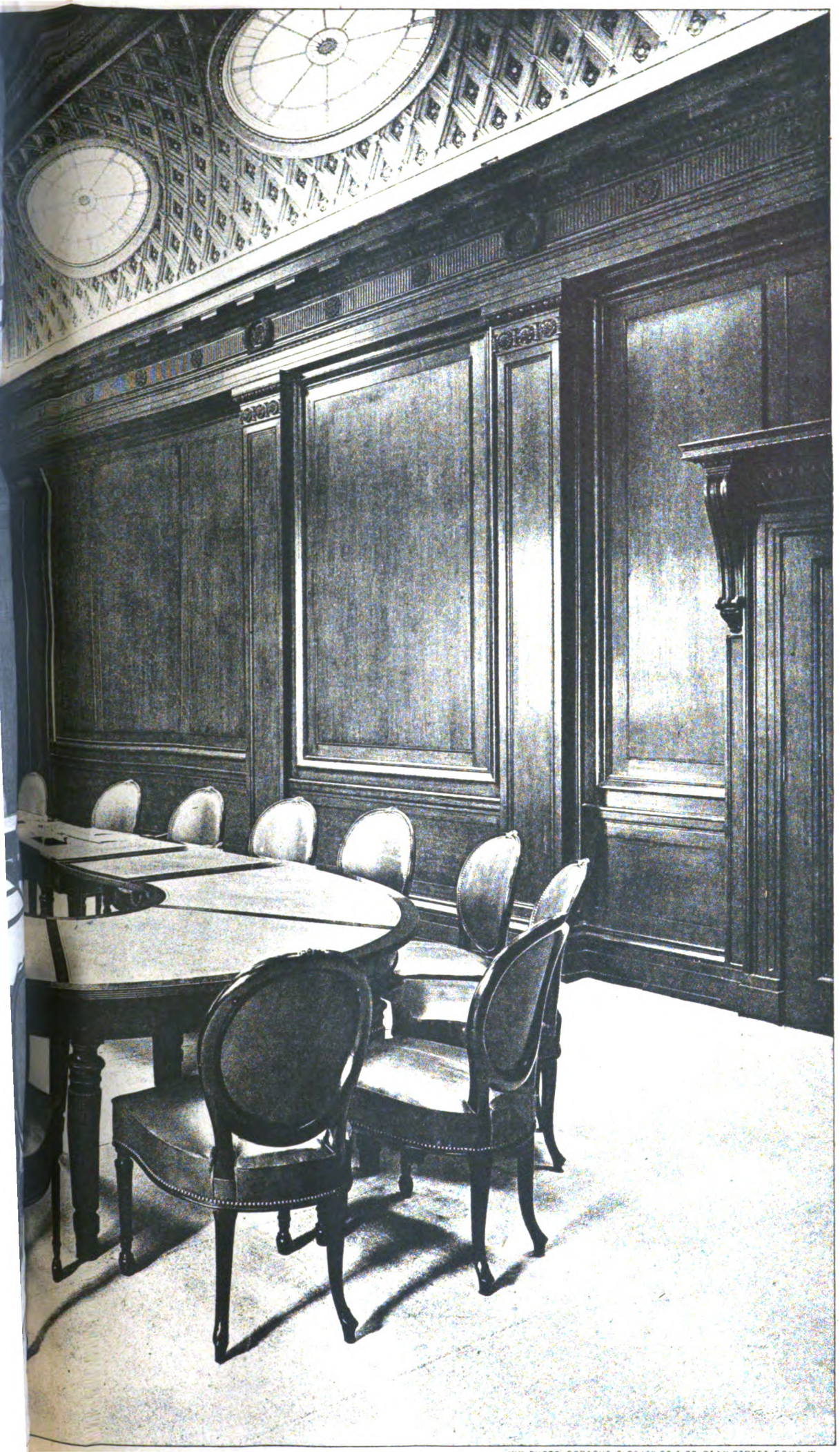
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Aug 25th 1917



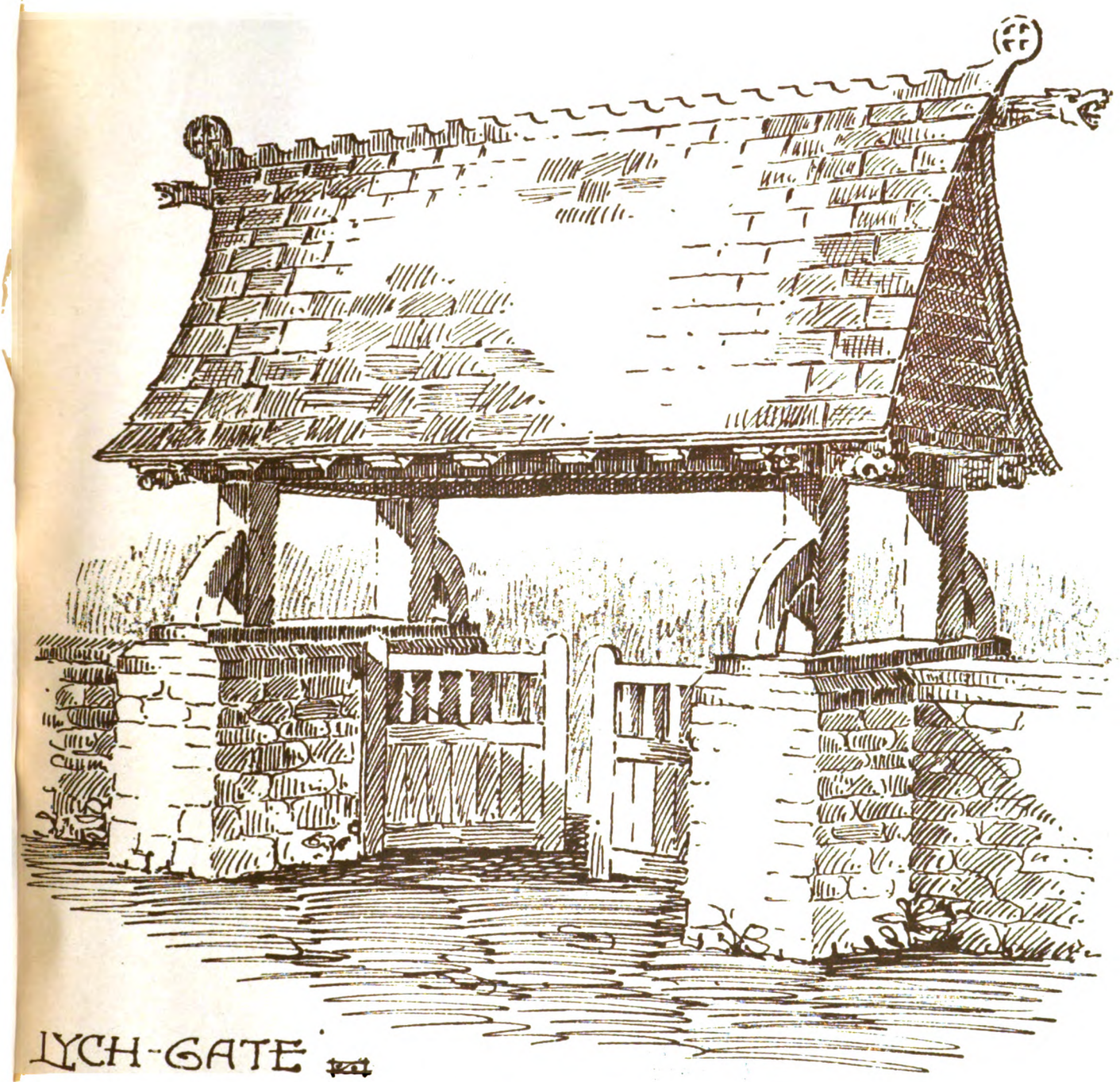
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ERPOOL. THE BOARD ROOM.

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LYCH-GATE

ERECTED · AT · WOOKEY · CHURCH : SOMERSET

MR. FREDK. BLIGH BOND, F.R.I.B.A., ARCHITECT.

PHOTO-LITHO. CORNISH & CO., LTD., 13 & 70 DEAN STREET, SOHO, W.

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undertaking that showed no improvement, namely, the method of collecting house refuse, except so far as the fixed ash-pit had been superseded by the movable pail.

Refuse is collected from all houses whether invaded by disease or not. Such refuse, therefore, should be treated as infected. Yet no means is taken to cleanse or disinfect the pails, or to prevent the air of our streets being contaminated by the refuse which is shot from the pail into the dust van.

You may be surprised when I tell you that the very worst mechanical feature of the plant is being perpetuated in the latest motor vehicles, namely, the dust ladder up some four feet of which the dustman has to raise his own weight, and that of the dust pail and its contents, some eighteen stone in all, which absorbs 1,168 foot lbs. of manual labour each time a pail is emptied. I estimate that at least 100 men are required in London on account of the labour absorbed in this operation, which, if low-bodied vehicles were adopted, could be utilised in other ways, say, in agriculture or the manufacture of munitions.

The electrically-propelled vehicles used in Paris and New York, &c., have low bodies so that pails can be emptied from the shoulder when the dustman is on the ground, thereby dispensing with the dust ladder.

The dust ladder is a fruitful source of accidents, for if the horse goes forward when the man is on the ladder the man is sure to get a nasty fall.

The system of collecting that seems to guard best against the spread of infection is that adopted in Florida, U.S., where the pails are standardised, and a large number of spare pails provided, so that when a collecting van leaves the depôt it is loaded with clean pails that have been disinfected. When the dustman calls at a house he takes one of these pails, which he leaves in place of the pail he removes and places on the van, no attempt being made to empty the pail till it reaches the depôt. By this means the contents of the pail are not disseminated so as to pollute the air of the street, whilst the cleansing and disinfecting of the pails at the depôt insures a clean pail remaining near the house.

The dustmen who remove these pails with covers on are not subjected to the filth and dirt that our men have to put up with.

The period allowed for refuse to remain near a dwelling is important. The period generally adopted is a week, but in warm weather refuse becomes offensive after three or four days. I hold the opinion that refuse should be collected once a day from houses where the pails are placed in the forecourts. The system of daily collections has been adopted at Teddington, and various other districts, and has proved less expensive than collecting once a week; this is due mainly to the fact that the pails can be collected rapidly, as no time is lost in proceeding to the rear of houses and calling to ascertain if the people are at home and want the dust cleared. As the men are under observation, the system lends itself to better supervision. Daily collections entail the labour of placing the pail in the forecourt on the householders, which is much objected to.

The value of food-stuff contained in house refuse appears to be such that a separate small pail might be provided for its reception. There are no figures that I know of from which to ascertain the amount of this food-stuff; not many years since contractors made their living by collecting such food-stuff for pig-keepers; the amount of such food-stuff has decreased, at the same time the value of the fat contained has increased from 26*s.* to £40 a ton.

By sifting out cinders a householder can materially reduce his coal bill, whilst ashes, bones, and vegetable matter, especially if the vegetable matter is burnt, form good garden manure. That a householder should put garden refuse into a dust-pail is nothing short of a crime.

I trust that, so far as the collection of house refuse is concerned, I have shown that practically no attention has been given to (1) Improve the condition of the dustman, who is called upon to perform work of a most degrading character; (2) Prevent the contamination of air and the spread of infection by house refuse; (3) The sanitary condition of dwellings from filthy dust-pails being left close to such dwellings; (4) The question of economy of collection.

Disposal of House Refuse.—The war has shown us the fallacy of what we have been taught to regard as sound finance, namely, that attention should be confined to those undertakings which showed a profit, whilst local authorities should adopt such methods as entail the lesser burden on their ratepayers without any consideration whatever as to the effect that such method had on the resources of the nation.

We have under our very eyes a flagrant instance of this policy which loses the nation at least £1,000,000 a year, probably far more. I refer to the method of disposing of the sewage sludge of London, inaugurated by the late Metropolitan Board of Works, and perpetuated by their successors, the London County Council. More than two and a half million tons of this sludge is sent to sea, and dumped at Barrow Deep, and now at Black Deep, to the destruction of fishing grounds which formerly supplied much of the fish food of London, whilst the agriculture of the country is deprived of the manurial value of this sludge at a time when it is impossible to procure the manure required to produce the food now so urgently needed.

Dr. Rideal, in a paper he read before the sewage works managers in December last, gave the value of nitrogen in sewage, at the present prices, as £105,000,000 a year, and yet we find London, Liverpool, Glasgow, Belfast, and other seaside towns sending their sewage sludge to sea when a ready market could be obtained for it as a manure.

The food supply of this country is dependent on the supply of manure, and the shortage there is in the manure supply is most serious.

Owing to the depletion of horses, horse manure is hardly obtainable, whilst much of the artificial manure formerly used came from abroad.

Let us consider how this shortage in manure can be met by house refuse, which has a fair manurial value.

To take it that refuse from half the population of this country is cremated in destructors would be an under estimate; this gives 4,500,000 tons per annum, having a manurial value of about £500,000 when rotted.

I take the case of a district that has adopted a rational method of disposing of its refuse, and one which has resulted since its adoption in a saving of at least £15,000 to its ratepayers.

This district is Southwark, where crushers were introduced in 1906, and have since been increased, so that for some years all the house refuse of the borough has been crushed, so as to form a poudrette, which is sold to farmers. The manurial value of this poudrette is about 2*s.* 6*d.* per ton.

Although destructors are not supplying an output which has a manurial value, good roads may be made with the clinker they produce, by breaking and treating such clinker with tar, pitch, or bitumen, as is done in Fulham, Hornsey, and Worthing. These roads have a fair life, and are economical to maintain, and capable of carrying heavy motor traffic, such as motor 'buses.

Since the outbreak of war no market can be found for the tins and scrap iron collected which formerly went to Germany, where I am told it was subjected to a moderate temperature in the presence of chlorine.

One hundred years ago, "a very profitable business" was the shifting and sorting of house refuse. Twenty years since, such shifting and sorting was in operation in several districts. This was done partly by machinery and partly by hand.

I cannot find that any of these plants are now at work, but the following are typical cases:—

In Glasgow the refuse was conveyed by belts, from which the various materials were collected by sorters stationed along such belt.

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Paddington had a plant erected by the late surveyor, Mr. G. Weston, which consisted of a series of screens; the material remaining on these screens was shot on to sorting tables, where the various materials were separated by hand. What passed through the last, that is, the finest, screens was loaded into barges and sold to brickmakers and farmers.

The Refuse Disposal Company in 1891 had a plant in work at Lots Road, Chelsea. This consisted of three series of revolving screens; all dust from, and paper remaining on the screens, was extracted by exhaust air, the paper was arrested, while the dust was carried to the furnaces that produced heat where it was burnt.

The paper arrested was cleaned and worked into pulp from which brown paper was made. The material remaining on the first and second series of screens was passed on to a revolving table where it was sorted by two boys; ashes and breeze being separated in the last, or finest, screens.

The output from the plant consisted of bottles, metal, fuel briquettes, manure poudrette, brown paper, cinders, and breeze.

Since the war the calorific value of house refuse has decreased, but that of ashes from power plants has increased owing to the coal used containing slack, which passes between the bars where mechanical stokers are used. I submit briquettes made from such ash.

These briquettes could be sold for 10s. to 12s. a ton, and would help to supply fuel for our less prosperous neighbours.

A discussion followed in which Mr. H. P. Boulnois, Lady Anderson, Mr. Carter (Borough Engineer of Croydon), Commander Dixon, R.N. (a member of the Westminster City Council), Mr. W. R. Hicks (Ealing), Mr. Edward Willis (Chiswick), Mr. Lamb (a contractor for the removal of refuse), Mrs. Cloudesley Brereton, the Mayor of Bromley, the Borough Engineer of Southwark, and others took part.

A vote of thanks was accorded Mr. Cooper.

HOUSING AFTER THE WAR.

LORD RHONDDA AND PRIVATE ENTERPRISE.

An important and representative deputation of national organisations connected with housing by private enterprise (which has been responsible for the building of over 97 per cent. of the existing working-class dwellings in the country) was received by Lord Rhondda at the Local Government Board Offices on the 22nd inst.

The arrangements for the deputation were made with Mr. A. W. Shelton, F.A.I., of Nottingham, who, in association with Sir John Rolleston and Mr. Edwin Evans, were the conveners of an important non-party conference of national institutions held in London on November 14 last, and of which next week's deputation is largely the outcome.

At this conference the following resolution was passed:

"That this conference views with deep concern the present unparalleled shortage of houses, particularly for the working classes, which is daily increasing, and being of opinion that the original and principal cause of so grave a state of things is both directly and indirectly due to the effects of the provisions of Part 1 of the Finance (1909-10) Act, 1910, as regards increment value duty, undeveloped land duty, and reversion duty, which has largely destroyed the confidence of investors in and lenders upon this class of security, previously regarded as the premier national security, urges his Majesty's Government to take prompt steps to remove the legislative provisions referred to and to give in every possible way their encouragement and support to private enterprise and co-operative effort in the provision of healthy dwellings for the people."

Sir John Rolleston, past President of the Surveyors' Institution, who introduced the deputation, urged that private enterprise was not again likely to meet the demand for such houses unless it was encouraged by the Government. The first thing to be done was to secure the repeal of the first part of the Finance Act of 1909-10.

Mr. E. Evans (President of the London Property Owners' Protection Association) said that they did not ask for subsidies, but for loans at a reasonable market rate of interest. Approximately £30,000,000 per year was required to provide for the normal growth of the population in England and Wales alone. Freedom of contract between landlord and tenant should be restored as quickly as possible.

Mr. Colin Campbell (President, National Farmers' Union) said that money should be available, at a reasonable rate of interest, for the building of houses for the agricultural classes. This would go a long way towards solving the food problem.

Lord Rhondda said that he was not going to make any declaration on behalf of the Government; he had no power to do so. He would be sorry to see private enterprise done away with, and he noted that their contention was that if want of confidence was removed and the Finance Act amended in the direction they suggested private enterprise would again be restored and there would be no need for State aid—members of the deputation pointed out that it would be necessary during any period of transition that followed the war. Lord Rhondda said they were apparently convinced there would be a transition period. Their claim was that during the transition period they should be put in the same position as any other building organisation, municipalities, or co-operative societies. They also, he understood, wanted banking facilities at the lowest possible market rates. He regarded the matter as a very urgent one, and they should have all their plans ready so that at the end of the war they would be in a position to put their claims into operation. Their meeting that day had served a useful purpose by making it clear that they only wished for loans during the transition period. They would have to make that clear to the country. There was no doubt a widespread impression that after the war was over, at any rate for a time before prices came down, the State would have to come in and assist in some way by grants in aid in order to provide houses. That was why their statement that they only required loans was important. He had not made up his own mind, and had wanted to get all the information he could from them. He wanted to hear the opinions of all who had practical experience in the matter, and when these had been thoroughly digested his Department could make a public declaration on the subject.

At a largely attended meeting of ratepayers at Ardrossan and Saltcoats a resolution was passed protesting against the attitude and action of the local Town Councils and the inaction of the Ministry of Munitions and the Local Government Board concerning the housing question in the district, and demanding immediate action, and that all houses let to people who had houses in other districts should be taken at once for the housing of local workers. It was stated that the number of individuals affected by the warning out of tenants by May 28 was sixty-six in Ardrossan and about sixty in Saltcoats.

Mr. P. M. Crossthwaite, M.Inst.C.E., an inspector of the Local Government Board, has held an inquiry at Scarborough into several applications of the Corporation for loans amounting in the aggregate to £12,700. Of this sum £6,000 was required for the construction of a toe and apron on the Royal Albert Drive. The Town Clerk said several gales had breached the wall at the portion where the old pier formerly stood. The foundations of the wall were also found to be weak, and the Council had to apply for further sums to carry out protective work. The Borough Engineer said his investigations had shown that, in some places, there was a loss of nearly 10 feet to the sea bed. The scour was very serious, not only at the base of the wall, but seaward at least 200 feet. The inroad on the shale was causing the wall to creep forward, and it was in a very dangerous state.

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THE OLD TOWERS OF CORNWALL.

By E. H. SEDDING, F.R.I.B.A.

(*Concluded from page* 277.)

THE towers already mentioned may be classed in the front rank of Cornish design. Let us now turn our attention to the many varieties of simpler structures, and of less pretentious order, such as the heavy angle buttress towers of St. Neot's and North Petherwyn, where the buttresses are of enormous strength, in contrast to which we have a tower like that of St. Mewan with its tiny pinnacles. At St. Ruan Minor we have a one-stage tower built of huge blocks of rough serpentine, averaging no less than two feet in height and three feet in length; where also the aisle walls, built in the same way, are only seven courses in height. In districts where granite or serpentine were plentiful it is common to find enormous stones in the tower walls (as, for instance, at Lanreath, where more than one stone measures above six feet in length). The contrast between the size of the material used in the hard stone districts and in localities where only soft stone was procurable is, of course, remarkable. It seems almost as if different races of men were employed to rear them. However, there is nothing phenomenal about it. It is simply a matter of the exigencies of supply. There can be no question of the dignity of the simple towers which were erected under such difficulties. The reduction of great blocks of these deterrent stones was a serious matter. It was easier to utilise the larger blocks as they came from the quarry. The question then was how to raise them into position. From the observation of the writer, it appears that towers in these localities were built from within, and that the main weights were lifted into position by means of ropes and chains, as the work proceeded, and not dropped into position as at the present day.

The reason for the detached towers of St. Feock, Gunwalloe, Talland, where the tower is united to the church in a charming manner by means of an open porch, and Lamorran,* was probably due to the different times of erection of tower and church. In some cases the matter of foundations was a difficult one, and if the builders desired to add a tower to the earlier church, it could thus be done with safety. At Beccles (Suffolk) the splendid campanile was erected in the sixteenth century and carried to a height of a hundred feet. Its further completion was stopped by the Reformation. It is known that the great weight of such a tower would cause a serious settlement to everything around, and, in consequence, it was built a safe distance from the church. There is no such written evidence to lay before the reader in the case of the detached towers in Cornwall. It may be safely asserted, however, that the explanation for this uncommon method of building tower and church apart was one of expediency alone.

There is, perhaps, no more peculiar example of a Cornish tower than that at St. Dominic, where the upper third of the height is wider, or projecting about four inches beyond the walls below, which are of late fourteenth century date. When the fifteenth century builders proceeded to add another storey or stage to the tower they did not remove the carved corbel-table which was of interest, but left it in position, and incorporated their new work with the original parapet of the earlier craftsmen. The stumpy appearance of the tower at St. Wenn is due to its incompleteness. Tradition says the upper part was destroyed by a storm. Anyhow, it is quite clear from the character of the workmanship displayed in the single stage that, if completed, it would have ranked in the first class of Cornish towers, for the traceried plinths, crowned with cresting as at Fowey, St. Austell, and Probus, prove that it was intended to be of unusual beauty in this part of the county.

Although Cornwall can boast of one of the finest modern central towers, the county is without a single existing pre-Reformation example. Collegiate and monastic churches usually possessed a tower at the west end of the choir or sanctuary, which constituted the campanile of the institution.

At St. Crantock the eastern responds of the base of the Norman tower, which fell during the latter part of the fifteenth century, are in situ.* This was the college tower for the repairing of which money was left, but the wish of the benefactor was never realised. The picturesque little western tower with its little buttresses and delightful proportions acted as campanile for the parishioners. There are several examples of transeptal towers, of which, perhaps, the most interesting is St. Mawgan, in the Pydar Deanery. The one at Bodmin, where the ground stage walls are no less than eight feet thick, was formerly surmounted by a spire. Other examples may be seen at Saltash, Blisland, Lawhitton, Duloe, St. Veryan. There is no evidence of any important arch opening from the tower to the church at Bodmin, which was entirely rebuilt in the fifteenth century. There are many kinds of tower arches in the county, the most elaborate being that of Probus, but the one at Fowey is the finest, rising to a clear height of more than forty feet.

In cases where the towers are of considerable altitude their eastern arches often comprise the grandest features of the church, and this is especially noticeable in the following examples: St. Stephen's, Launceston; Kilhampton, Kellington, North Hill, South Hill, St. Buryan, Roche, St. Austell, St. Stephen's-in-Brannel, and St. Mabyn.

The tower arches of the Lizard district have a special character of their own. At St. Mawgan the pilaster-like responds carry the inner members of the arch. Treatment of this character occurs in the delightful little tower of St. Denys, where the same members are taken by carved panels, one of which represents a mitred bishop. Another feature of this tower is the porch formed in the thickness of the west wall, very similar to the one at St. Keverne.

When Archbishop Benson said that Cornwall contained no pre-Reformation bells, he was unaware of the one in the tower at Lansallos, with the inscription "Margarita Ora Pro Nobis."† The carving on the western buttresses, and the treatment of the figure supporting the niche, whose hands clasp the apex of the label moulding of the west window, affords an interesting illustration of the range of character displayed by the old craftsmen of Cornwall.

The range of design shown in the panels of the buttresses at the base of the tower is sufficient to prove that the carvers in this locality possessed no ordinary ability.‡ This is somewhat remarkable, because the design of the Lansallos tower does not rank in the first class of Cornish towers, for it is only of medium height, and its proportions are not above the average, either in grace of outline or skill shown in its construction.

Whatever view we may take of the character and faith of the great race of builders who reared the towers and steeples of England, we cannot but admit their artistic value and practical utility in relation to the modern science of building.

As landmarks their towers were of real service, both on the lonely moorland districts by day, and by night their position was emphasised by the beacon fire that blazed from the turret parapet.

Of the iron braziers on which their fires were kindled only a single example remains, namely, on the church of St. Stephen's-by-Saltash, a silent witness of past services.

* Illogan was not originally built away from its church, the church was removed from it during last century.

* Behind the rood-screen the twin shafts of the responds remain several feet above the floor level.

† There is also a pre-Reformation bell at St. Anthony-in-Meneage inscribed "Sancta Maria Ora Pro Nobis, W.H." (William Hasulwood, of Reading, 1495-1509), which now lies broken at the foot of the tower.

‡ This refers in particular to the south buttresses.

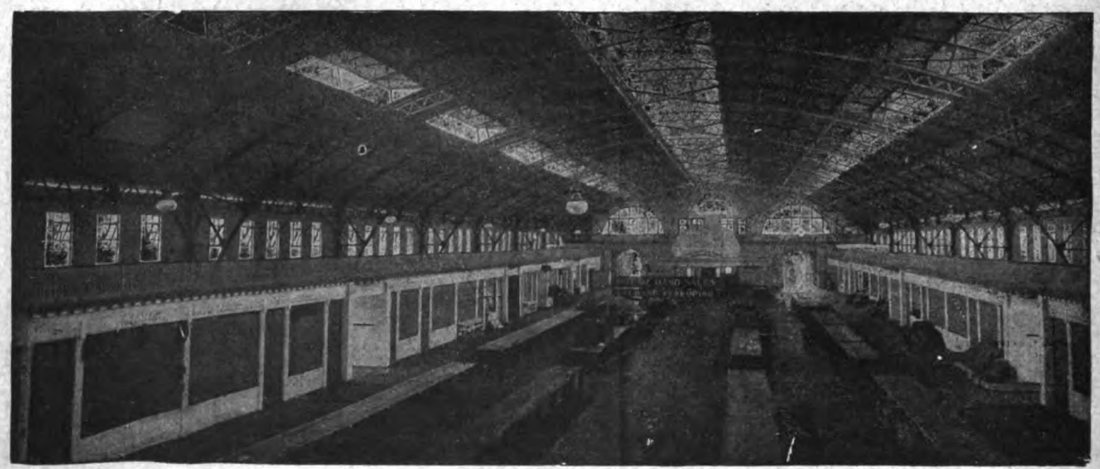
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The signal towers and spires which have stood immovable for many a century, like faithful sentinels, situated either on moorland heights or by the side of tidal estuaries, have fulfilled many a service to those on sea.

Correspondence

[The Editor will not be responsible for the opinions expressed by Correspondents.]

National Committee for Relief in Belgium.

SIR,—In view of the fact that the United States Government has generously assumed all financial responsibility for the work of the Commission for Relief in Belgium, it has been decided that the National Committee for Relief in Belgium will suspend its appeals to the public in the British Empire. Any moneys received after June 1 will be held to provide for emergencies now unforeseen in connection with relief in Belgium.

This course of action is in accordance with the suggestion made by Mr. Hoover, Chairman of the Relief Commission, who is now in Washington, and has the approval of His Majesty's Government and the Belgian Minister.

During the existence of the Committee over £2,400,000, subscribed throughout the British Empire for the relief of our oppressed Allies in Belgium, has passed through its hands. The second annual meeting will be held at the Mansion House on June 15, when opportunity will be taken to express gratitude to those committees and individuals who have co-operated with such marked devotion in the work of the national body.

Signed, on behalf of the National Committee:

W. H. DUNN,
Lord Mayor of London, Chairman.

RANDALL CANTUAR.	W. A. M. GOODE, Secretary.
FRANCIS, CARDINAL BOURNE.	LANSDOWNE.
JOHN BROWN, Moderator, Church of Scotland.	ROSEBERY.
W. B. SELBIE, President, Free Church Council.	BRYCE.
J. H. HERTZ, Chief Rabbi.	ARTHUR HENDERSON.
	JOHN E. REDMOND.
	A. SHIRLEY BENN, Hon. Treasurer.

May 19, 1917.

BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders, the address is, as a rule, local.)

ENGLAND.

BUCKINGHAMSHIRE.

Farnham Royal.—"The Cottage," One Pin Lane: additions and alterations for Miss B. L. Harris.

DURHAM.

South Shields.—Factory, Shadwell Street, for Messrs. Brigham & Cowan, Ltd.

ESSEX.

Harwich.—R.C. Church: extension.

HAMPSHIRE.

Portsmouth.—Picture House, Elm Grove, for Mr. Pennell.

LANCASHIRE.

Bolton.—St. Chad's Church, Tonge Fold: proposed Mission Church.

Crompton.—Crompton Hall, Shaw: alterations.

Eskmeals.—Works: extensions for Messrs. Vickers, Ltd.

Horwich.—St. Catherine's Church: proposed Parsonage.

St. Helens.—The Providence Hospital: proposed extension (£3,000).

MIDDLESEX.

Hampton-on-Thames.—The Leyland Hotel: alterations for Mr. F. Karno.

NORTHUMBERLAND.

Newcastle-on-Tyne.—Proposed public abattoirs.

St. Andrew's Church: proposed parish hall.

NOTTINGHAMSHIRE.

Sutton-in-Ashfield.—Motor house, Charnwood Street, for Mr. E. Keeling.

STAFFORDSHIRE.

Dudley.—Proposed technical school, Ednam Road.

YORKSHIRE.

Beverley.—Proposed warehouse and workrooms, for the Diamond Hosiery Co. (Market Weighton).

Sheffield.—Additions, Little London Road, for Messrs. R. Hyde & Son, Ltd.

Alterations, Cross Lane, for Messrs. G. Batty & Sons.

Additions, Coverdale Road, for Mr. Bell.

Compressor House, Greystock Street, for Messrs. Spear & Jackson, Ltd.

Additions, Norfolk Road, for R. Staniforth's Exors.

Alterations, Clarence and Moore Streets, for Messrs. D. Gilmour & Co., Ltd.

SCOTLAND.

Coatbridge.—Proposed Y.M.C.A. Institute (£6,500).

Glasgow.—Children's Clinic, corner of Langland's Road and Drumnoyne Drive, Govan, for the Elder Cottage Hospital Trustees.

Forge and other buildings, Rugby Street, for Messrs. W. Beardmore & Co., Ltd.

Foundry, Holmhead Place, Cathcart: extension for Messrs. G. & J. Weir, Ltd.

Engine House, Ferry Road, Partick, for Messrs. D. & W. Henderson & Co., Ltd.

Scotstoun Iron Works, South Street, Whiteinch: addition for Mechans, Ltd.

Workshops, South Street, Whiteinch, for Messrs. Barclay, Curle & Co., Ltd.

Works, No. 60 Summertown Road, Govan: addition for the Govan Shafting and Engineering Co., Ltd.

Gretna.—Proposed U.M. Church.

IRELAND.

Athlone.—Franciscan Church (£20,000). Mr. T. J. Cullen, M.R.I.A.I., architect, 25 Suffolk Street, Dublin.

MR. GEORGE M. ROSS, M.A., B.E., of the firm of Kaye, Parry & Ross, architects and civil engineers, Dublin, has left Dublin for France to take up an important position on the French railways in connection with the war.

MR. T. H. THORPE, architect, of St. James's Street, Derby, has been selected by the Derby Board of Guardians to prepare plans for the erection of the proposed new workhouse infirmary.

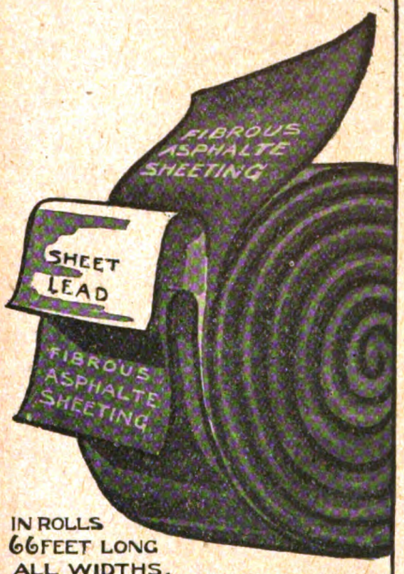
MR. S. J. HARPUR, surveyor, of Maesteg, Glamorganshire, has been appointed Divisional Surveyor for the Northern district of the county of Middlesex, to fill the vacancy caused by the death of Mr. C. H. Bradshaw.

MR. EDWARD ROBERT ROBSON, F.R.I.B.A., F.S.A., Fellow of the Surveyors' Institution, formerly architect to the London School Board, who died on January 19, aged eighty-one, left estate valued at £3,802 15*s.* 9*d.*, with net personalty £3,633.

AN addition has been made to the northern province offices of the S.P.G. at York in the form of a very beautiful chapel, which is shortly to be dedicated, and which will be open daily for private prayer and meditation. The altar and fittings are in the Early English style, and have been designed by the Rev. P. J. Shaw, rector of All Saints', North Street, York.

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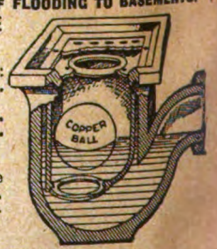
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FORTHCOMING EVENTS.

Friday, June 1.

Town Planning Institute : Further discussion on "The Construction and Improvement of Roads under the Town Planning Act," at the Surveyors' Institution, 6 P.M.

Saturday, June 2.

St. Paul's Ecclesiological Society : Address on the "Monks of Westminster," by the Ven. Archdeacon of Westminster, in the Jerusalem Chamber, at 3 P.M.

Monday, June 4.

Royal Institute of British Architects : General Meeting.

The Surveyors' Institution : Annual General Meeting and Distribution of Prizes, at 5.0 P.M.

Wednesday, June 6.

Royal Archæological Institute : Paper entitled "Notes on the Design and Decoration of Misericord Seats," by Mr. G. C. Druce, F.S.A., in the apartments of the Society of Antiquaries, at 4.30 P.M.

Thursday, June 7.

Society of Architects : Paper entitled "Coal from Concreted Breeze, Sawdust, and Ashes," by Mr. R. Goulburn Lovell, A.R.I.B.A., M.S.A., at 6.30 P.M.

Saturday, June 9.

Edinburgh Architectural Association : Visit to Inveresk.

Monday, June 25.

Royal Institute of British Architects : Presentation of Royal Gold Medal.

Thursday, June 28.

Institution of Municipal and County Engineers : Annual General Meeting (three days).

ARCHITECTURE AT THE ROYAL SCOTTISH ACADEMY.

DESPITE the war the Royal Scottish Academy opened this year as usual for the ninety-first time. Saturday, the 5th ulto., was the opening day to the public.

The architectural works, as one would naturally expect, are not as strong as usual, but nevertheless the show is quite a commendable one for war-time.

One would anticipate in these times to see some of the influence of the war in the works exhibited, such as war hospitals, architectural treatment of munition factories, or illustrations of some of our mushroom munition towns which have arisen under the able supervision of our garden city experts, but none of that influence pervades the exhibits. It is a peace-time show, a review of the works done previous to the war.

The finest exhibit from an architectural point of view is undoubtedly Mr. Robert Atkinson's three large drawings of "The Proposed Scheme of Improvement at Bath." This magnificent scheme has already been shown in illustration to the architectural world, but the original drawings in colour have a greater charm, and convey more to the architect than mere reproductions.

The drawings exhibited comprise a large general plan and two coloured perspective views.

The plan is academical and masterly, rendered in black wash, with the slightest suggestion of colour.

The perspective view looking north shows the Abbey Church, a Gothic building, in the background. In front is a sunk court with bandstand centrally placed in the screen wall at back of court.

The Abbey Church not being a symmetrical building, some feature was necessary to mark the axial line. The bandstand forms a simple motif and fulfils this purpose. A high terraced walk, sheltered on one side by a close hedge of trees, runs round three sides of the court at the high level.

The suggestions for the side buildings shown in the perspective are simplicity of design on good academic lines and in complete harmony with the architecture of Bath.

The view looking to the south looks straight toward the concert hall, a simple well-massed structure. The centre drum of the hall rises higher than the main structure and finishes with a flat conical roof. The main entrance, a highly dignified portico of six columns, forms the principal feature.

In front is a garden arrangement, in the centre of which is a circular pond and basin of simple architectural character. As before, the side buildings are very simple and dignified, almost Italian in design.

These perspectives are beautifully coloured pencil drawings, and good examples of Mr. Atkinson's inimitable draughtsmanship.

Nothing is more charming than the work of Mr. Walcot, the eminent artist and architect. His "Entrance to an Assyrian Palace" is a subject specially suited to his art. The Palace entrance appears a small square opening cut in a huge mass of masonry. The grandiose effect is got by the many flights of steps which lead up to it and the small scale of the groups of people ascending and descending, which add interesting spots of colour to the picture. The general tone of the picture is greenish with deep flat blue sky and tall black trees silhouetted against it.

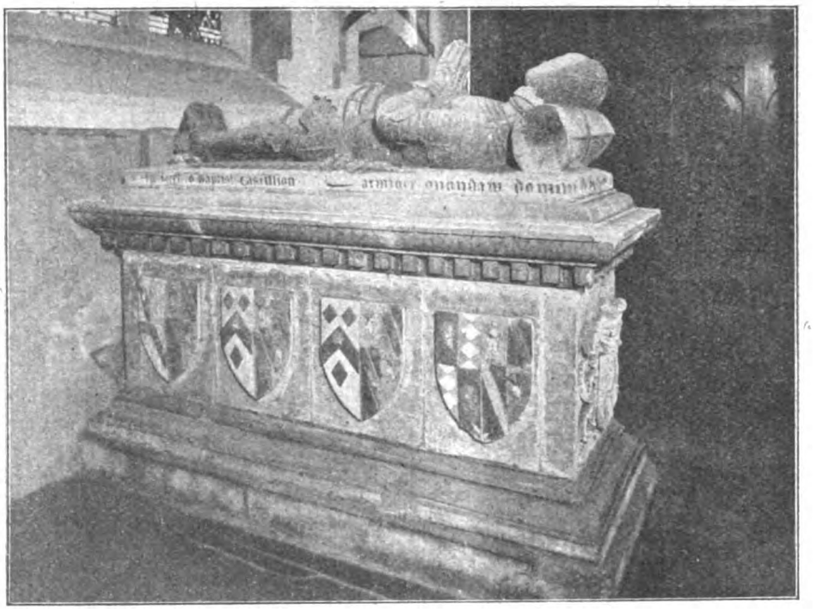
The restoration of the Acropolis, Athens, is the subject of another of Mr. Walcot's pictures. This work does not suggest the same sense of the mysterious which pervades the Palace entrance, but conveys the same feeling of magnitude of scale, got no doubt in the same way by the crowds of people which appear mere specks of colour going up and down the hill. The picture shows the finely grouped mass of temples at the top of the hill. A considerable amount of foreground is shown with the winding roadway leading to the top. The setting is magnificent and an architectural picture of the highest merit.

Occupying a central position on one of the walls is an interesting perspective in colour of Gourock Municipal Buildings by Mr. A. N. Paterson. It is a very nice water-colour perspective, and shows the municipal buildings from a very interesting point of view. In the foreground a special feature has been made of the high clock-tower, which rises from the corner to a considerable height and finishes with a steeply tapered roof with flèche at top.

Mr. Paterson also has three good photographs of alterations and decoration to No. 10 Great Western Terrace, Glasgow. The original work was designed by Alexander (Greek) Thomson. The interiors are quite charming, and show great restraint and severity of design, although they do not seem to have caught quite the Greek atmosphere of the famous "Greek" Thomson's work.

Mr. James Miller exhibits two beautifully coloured drawings of a very large house at Monkton, Ayrshire. The one elevation is of the entrance front, the other shows the garden front. The house is of the English

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THE CASTIGLIONE MONUMENT IN SPEEN CHURCH, NEAR NEWBURY.

type with red tiled roofs and gables which gives a brightness of colour. The ground-floor storey, being roughcasted, forms a white base to the building. The view of the garden front, although drawn in elevation, has the foreground projected, showing the rich colouring of the garden borders.

Mr. Miller also shows a large photograph of the Royal Infirmary, Glasgow. The view is of the Queen Victoria Diamond Jubilee Block, and shows the fine long classic façade with a dome as a central feature. The frontage is a straightforward piece of good classic work.

Quite a feature of the exhibition is a display of designs and work executed by the late Hippolyte J. Blanc, R.S.A., and the late Wm. Leiper, R.S.A.

The most outstanding of these works is certainly the Coats Memorial Church, Paisley, by the late Hippolyte J. Blanc. A very large pen-and-ink perspective illustrates this monumental building. The perspective by Mr. Raffles Davidson is a good piece of perspective work and shows the building off to the best advantage. The church is very highly situated, and long flights of steps lead up to the main entrance. The building is large in scale and Gothic in design. The massing of the building works up towards the fine crown spire which rises from the crossing, similar to St. Giles' Cathedral, Edinburgh.

Other works by the late Hippolyte J. Blanc are a pen and ink perspective of St. Matthew's Parish Church, South Morningside, which appears a little old-fashioned in rendering, a water-colour sketch of All Souls' Church, Invergowrie, and a large finely coloured view of St. Cuthbert's Parish Church, Edinburgh. A good interior perspective by Mr. Alexander McGibbon is given of this latter church. The perspective is an excellent piece of pen and ink work and looks down over the pews towards the fine classic apse. Three interior photographs are shown of St. James' Church, Paisley, which are a little uninteresting perhaps.

Ferguslie Park, Paisley, as a piece of the late Mr. Blanc's domestic work, appears to be rather poor Scotch baronial design. His sketch, however, of Muirend House, Colinton, is quite a brilliant water-colour view of an English half-timber house.

One of the best half-inch details shown is that of the centre feature of Edinburgh Merchant Company Ladies' College by the late Hippolyte J. Blanc. The detail, which is done in black wash with tones of colour, shows the central motif of a classic building of three storeys and attics.

Two delicate pencil sketches of Mont St. Michel, Normandy, and Orvieto, Italy, are good examples of the ability of the late Mr. Blanc as a sketcher.

Coming now to the work of the late Mr. Wm. Leiper, the Sun Insurance Buildings is probably his best work. A charming brown-toned photograph illustrates this well-known Glasgow building.

The design for a mansion house, Mr. Leiper's diploma work, is an excellent ink perspective of a baronial mansion. The large trees in the foreground are beautifully drawn and prove his ability as an artist. Kinlochmoidart, Inverness-shire, is of the same character and design, the perspective being somewhat similar. Knockderry Castle, Dumbartonshire, is another baronial work. The sketch is in black and white wash and shows a portion of the building to a fairly large scale.

His church work includes a good photograph of Camphill Church and a somewhat faded interior photo of Hyndland Church, both Glasgow churches. His church of St. James, Kilmalcolm, is rather more interesting, the tower being a unique feature having quite an unusual finish at the top. His competitive design for Woodlands Road Church, Glasgow, is quite ordinary in character.

Other photographs of the late Mr. Leiper's work are Messrs. Templeton's Carpet Factory, Glasgow, of Moorish design in pattern brickwork, and some domestic interiors of no special interest.

Sir Robert Lorimer has only one exhibit this year, six views of his Thistle Chapel, St. Giles' Cathedral. Four of the views of this ever-interesting work are interiors, showing the very rich elaborate woodwork of the stalls. One view is of the entrance and another is looking on the ceiling, showing the many richly carved bosses.

Gargrave House, Yorks, is an excellent Georgian house by Mr. James B. Dunn. He has this house fully illustrated by three frames of photographs. The interiors are specially interesting, being rich and pleasing, the Georgian character being well maintained throughout.

Messrs. H. E. Clifford & Lunan have four photographs of a country church. The church with its simple square tower is a very good work. The same firm show a perspective of a country house with sunk garden. The perspective is a fine ink one by Alexander McGibbon. The house is well set back in the picture, showing an expanse of foreground which is somewhat bare of architectural interest.

Messrs. Dunn & Watson have three exhibits, two being of groups of cottages at Pasture Wood, Surrey, and house at Harmer, Green Welwyn, Herts. A num

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ber of photographs illustrate these works, which have a quiet, homely effect, in many ways similar to the work of Mr. Lutyens.

Meggerine Castle, Perthshire, by Messrs. Leadbetter, Fairley & Reid, is represented by two pen and ink sketches. Both sketches show long frontages of a three-storey Scotch castle of very good design. The walls are shown rough-casted with stone crow steps and dressings, and quite characteristic of the firm's work.

Mr. J. A. Williamson has three good drawings, one a half-inch detail of the front of Morningside Branch Library, a little pen-and-ink sketch of Golf Pavilion, Saughton Park, and cottages at Braid Hills Golf Course.

Mr. James A. Morris, A.R.S.A., is rather poorly represented this year, his selection of interior photos of domestic work being rather commonplace. His interior of the Assembly Hall, Ayr Academy, is rather better.

A very excellent drawing is shown of the new building for the Faculty of Arts, Liverpool University, by Messrs. Briggs, Wolstenholme & Thornely, and F. W. Simon. The perspective is neatly pencilled and most delicately coloured, and is one of the best of the smaller exhibits. The building has the lower storey in channelled masonry forming a base to the building, the three upper storeys being in red-facing brick with stone dressings. The design is classic, treated in quite an interesting manner.

Mr. Ed. J. May gives some fine interior photos of Webbington House, Somerset, which shows the walls and ceilings richly decorated with "Bankart" plasterwork. He also shows a crayon sketch of a house in Surrey.

Mr. Frank Ed. B. Blanc has a very good design for restaurant, offices, &c., London. The perspective is in wash by Mr. Alex. Millar, and shows a thin strip of a building sandwiched between two blocks of buildings.

A neat little pen-and-ink sketch of Benarty House, Colinton, is quite characteristic of the work of Messrs. J. Jerdan & Son.

Among other works shown are six photographs of good classic interiors of the Albemarle Club, London, by Messrs. Smith & Brewer; a selection of exterior views of a large manor house in Gloucestershire by Mr. A. Ernest Barnsley; and eight exceptionally interesting photographs of different houses by Mr. Ernest W. Gimson.

Other architects represented are Mr. William Kelly, Mr. Andrew A. MacCulloch, Mr. Francis W. Troup, Mr. Sidney H. Barnsley, and Mr. Ivor Beaumont.

NOTES AND COMMENTS.

THE Bishop of Lewes, in his visitation as Archdeacon of Chichester, added his voice to the chorus of exhortation for reticence and restraint in the erection of war memorials in our churches, and advised that as far as possible united memorials and not single ones should be the rule. It is sufficiently obvious that with the unfortunately enormous number of heroes whose sacrifice in the great war deserves commemoration and record the collective rather than the individual memorial is alone feasible, unless many are to be excluded by the first comers amongst the friends and relations of those who were the earliest to fall. One worthy memorial, as fine as art can make it, in each parish to commemorate all those locally connected is far preferable to scores or hundreds selected from the stock patterns of ecclesiastical tailors and art furnishers.

The record of the Sheffield and South Yorkshire Society of Architects and Surveyors of the part taken in the war by the members of the profession, whilst one of which the Society may justly be proud, is but indicative of the attitude of the profession generally.

At the beginning of the war there were between sixty and seventy architects and surveyors practising in Sheffield. Each of these, of course, employed one or more assistants. To-day, so far as is known, no fewer than 107 architects, surveyors and assistants are serving with the Colours. Of those who joined the Forces as rankers thirteen have been granted commissions, while nineteen members entered as officers or were serving as officers on the outbreak of hostilities. In addition to these, seven men are cadets, two of whom have seen service in the field. The cost of glory has been fully paid, for four of this gallant company have made the great sacrifice, and a large number have been wounded, one or two so severely as to incapacitate them for further service.

Interesting discoveries continue to be made at Pompeii, according to an account which a correspondent of the "Daily Mail" gives of the most recent excavations. A large house belonging to one Trebius Valens in the Street of Abundance has been found in an excellent state of preservation. Other fine private houses have been excavated in the same street, but large shop windows and artisan premises suggest that it was of more business importance than even the Stabian and Nola Streets.

Whilst the activities of Syndicalist agents, which appear to have been mainly responsible for the recent engineering strike, may be expected to continue and to remain a danger to British industry, we are optimistic enough to believe that the commonsense of British workmen will incline them to support such a movement as that initiated by the National Alliance of Employers and Employed, a meeting of the General Committee of which was held on the 22nd ulto., when the problems of the relationship between masters and men after the war were discussed, and the Alliance was formally constituted. Mr. F. Huth Jackson, chairman, presided, and among those present were:—Mr. W. A. Appleton (General Federation of Trade Unions), Mr. J. M. Bell (National Union of Labour), Sir Kenneth Crossley (Crossley Bros., Ltd.), Mr. J. Crinlon (Card and Blowing-room Operators), Sir Vincent Caillard (Vickers, Ltd.), Mr. F. Dudley Docker, C.B. (Federation of British Industries), Sir Algernon Firth (Firth & Sons, Ltd.), Mr. Ivor Gwynne (Tin and Steel Mill Men's Union), Sir Robert Hadfield (Hadfields, Ltd.), Mr. J. Henson (National Sailors' and Firemen's Union), Mr. J. Solomon Hill (Engineering and Allied Trades Societies' Federation), Mr. E. Manville (Daimler Company), Mr. Wm. Mullin (Amalgamated Society of Card and Blowing-room Operatives), Mr. Frank Moore (Moore, Eady & Murcott Goode), Mr. R. T. Nugent (Federation of British Industries), Mr. Arthur Pugh (British Steel Smelters and Kindred Trades Association), Sir Hallowell Rogers (Birmingham Small Arms Company), and Mr. W. J. Davis (Brassworkers and Metal Mechanics). The Chairman referred to the gravity of the prevailing unrest, not only among workmen, but equally among employers and business men. There had been a better relationship growing up between employers and employed, but he thought it had to be admitted that in a good many cases workmen had in the past not received a due proportion of the results of their industry. Employers must recognise that workmen in the future must be better paid, better housed, and better educated. The workman, on the other hand, must recognise that a full wage carried with it the obligation of a full day's work, and that where a full day's wage was paid interference with the productivity of industry must not be allowed.

At a meeting of the North Wales branch of the Welsh Housing Development Association held on the 21st ulto. at Bangor, Mr. Chas. T. Ruthen, treasurer, spoke of the work of the South Wales Garden City and Town Planning Association, and said they in South Wales looked upon the work of their Association quite optimistically, and felt they had had a considerable amount of payment

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already, and looked for further payment in the future. As to house planning, there were a number of ladies who thought that while there were many good men architects there were also some bad men architects. Those ladies thought good houses would never be planned until the matter was taken in hand by the ladies themselves, and the South Wales Association had thought it would be a good thing to collect a large body of opinion of many thousands of women on the faults o the plans prepared by men architects. As an architect himself, he saw no reason—women living in houses more than men did—why women should not be allowed to control the planning o houses in which they had to live.

Continuing, Mr. Ruthen said he had been asked to give a short outline of work in front of the new Association. In doing so he named, without comment, fourteen or fifteen matters, such as an investigation into the housing conditions of North Wales, the formation of a policy of afforestation for the whole of Wales, the proper development of the fisheries industry, the development of the stone and slate quarries of North Wales, and of a more extensive use of the fine slates produced in North Wales; the development of small coastal industries on the pattern of the Norwegian small coastal industries, the development of the water resources of Wales, the development of Welsh agricultural resources in conjunction with the A.O.S., the utilisation of peat deposits, an attempt to make Wales the pleasure ground of Europe, &c.

The Association of Municipal Corporations having considered the proposals to form a Ministry of Public Health, their Law Committee will recommend the Council of the Association, who will meet on June 14, to pass the following resolution:—

That inasmuch as the conservation and improvement of the public health call for the exercise of wide powers of local government touching the lives of the people at many points and involving questions not only of public medicine but also of engineering economics and finance, and as these powers have been for many years entrusted to publicly elected bodies under the supervision and regulation of the Local Government Board, and under this system there has been a steady and progressive improvement in the health of the people,

This Council is of opinion that if any further consolidation or extension of public-health powers is desired it should be attained by a development of the present organisation and the recognition of the Local Government Board as the Central Public Health Department.

The following official statement was issued from the Press Bureau last week:—

The Building Trades Central Advisory Committee (Operatives), which advises and assists the Ministry of Labour upon matters affecting workmen in connection with Employment Exchanges, has held its third meeting. There were present: Mr. C. F. Rey (Director of Employment Exchanges), in the chair; Messrs. J. Batchelor (Operative Bricklayers), W. Bradshaw (Operative Stonemasons), F. Chandler (Amalgamated Carpenters and Joiners), H. J. Edmiston (Operative Plumbers), Charles Ince (Builders' Labourers), J. Kinniburgh (Electricians), T. H. Otley (Operative Plasterers), J. Parsonage (Amalgamated Painters), J. Vickers (Heating Engineers), W. Wentworth (Woodcutting Machinists), R. Wilson (Operative Slaters).

The Committee received a statement with regard to the steps being taken by the Department to assist associations to comply with the recommendations of the Treasury Committee on the audit of claims for repayment under Section 106 of the National Insurance Act, 1911, in respect of unemployment benefit paid by the associations. The Committee also considered—

(*a*) The best means of avoiding delay in the placing of men sent by Employment Exchanges from one town or district to another.

(*b*) The desirability when appointing Employment Exchange officials, whose duty it will be to deal with applicants for employment, of giving due consideration to their qualifications, both as regards knowledge of industrial conditions and ability to deal sympathetically with workmen.

It was reported to the Committee that the Ministry of Munitions had decided to extend the list of occupations for which men are eligible for enrolment as war munition volunteers to include bricklayers and general labourers suitable for munitions or shipyard work.

The Commercial Intelligence Branch (Foreign Samples Section) of the Board of Trade has prepared an index of foreign catalogues, issued by German and Austro-Hungarian firms, which have been collected by this department from all parts of the world. The catalogues in question may be seen by United Kingdom manufacturers at 32 Cheapside, E.C., and, in certain cases, where it is not convenient for manufacturers to inspect the catalogues in London, they will be lent for short specified periods, so that firms may have an opportunity of studying them at their own works.

ILLUSTRATIONS.

HINDHEAD COURT, HASLEMERE.

THE general character of the design of this house, by Mr. John H. Howard, Haslemere, Surrey, appears from our illustrations, and will be further elucidated in subsequent issues. The general materials used are solid English oak and local bricks and tiles made by Messrs. Grover & Sons, Haslemere. The interior oak work has been executed by Messrs. Howard & Sons, of Berners Street, W., the lead-work by Messrs. Cashmore & Co., of Victoria Street, S.W., whilst the general contractors were Messrs. Chapman & Lowry, of Grayshott, Hants. The gardens were laid out from the designs of the architect, by the Guildford Hardy Plant Nursery.

ARCH OF TITUS, ROME.

SOME few years ago the proprietors of "The Architect" purchased the original copper plates and copyright of Taylor and Cresy's "Rome," which still remains a valuable and standard work, and the latest edition of which is completely out of print. We therefore in this number commence the publication, in serial form, of a further edition of the work.

MORTAR.

ITS MINUTE HARDENING CHANGES.

Written and illustrated by James Scott.

THE basis of lime is a metal named calcium—hence the frequent use of this latter word as a synonym for the various compounds of the substance. This metal is never found free. That is to say, it always occurs in combination with some other elements. There is reason, however, to believe that it may have been abundant in the earlier periods of the earth's history. It has to be manufactured from materials containing lime, by means of electrolysis, and when thus prepared is either silvery white or pale yellow (dependent on the state of purity), but gradually darkens to an iron black, brown, or slaty hue. So remarkable is this metal that it cannot be turned to constructive uses, owing to the readiness with which it decomposes on exposure to the air. To keep it intact it must be stored in absolutely air-tight receptacles.

According to my observations on the piece of calcium metal in my possession it behaves as follows. Soon after exposure to the air invisible globules of vapour settle upon it, and cause some of it to ridge up round their rims as a fine opaque white powder. This process of change continues with increasing widening inwards of

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the ridges until a disc of white is completed. Several such patches evolve together, some overlapping others, and finally the whole surface becomes a mass of white powder. This condition then penetrates deeper.

The interest of the subject from our present standpoint is that the dust, when first produced, is lime hydrate, the equivalent of slaked lime, and subsequently changes by attracting carbonic acid to itself into lime carbonate.

Carbonic acid, by the way, is the gas known technically as carbon dioxide, carbonic anhydride, and CO_2. The symbol stands for carbon and oxygen, there being definite proportions of each gaseous element. Carbonic acid has the peculiar property, according to its relative amount, of either hardening or dissolving lime. Suppose we have some fine particles of chalk or limestone or marble (*i.e.* lime carbonate) suspended in water, and introduce more carbonic acid thereto. The lime, up to a given extent, will be dissolved, and remain undetectable in solution as lime bicarbonate, which it is impossible



FIG. 1.—One twenty-fourth inch area of the lime carbonate film which forms on mortar, owing to absorption of carbonic acid from the air. (Magnified.)

to obtain in the solid form because when the fluid is evaporated some of the carbonic acid evaporates, leaving the remainder in association with the lime carbonate, which is deposited as such. Mortar cannot take up excess carbonic acid, else it would be destroyed.

The setting and hardening of mortar is due to the action of carbonic acid derived from the air. To adequately understand the matter the reader is advised to follow the suggestions which I now make, and pour lime water into wine glasses, or some other suitable receptacles. When mortar is being formed, quicklime (this is lime oxide) is slaked with water, and thus becomes lime hydroxide or hydrate. The two names signify the same thing. A definite amount of washed sand is then stirred into it, and the whole is thoroughly mixed to a paste. This serves to hold bricks and stones in position, and eventually becomes so strong and dense that, if it has been properly prepared, it cannot be chipped or broken without the most violent blows with a chisel and hammer upon it. What is it that converts a soft paste into a refractory rock? The answer is, carbonic acid.

If we stir up a small quantity of slaked lime in water, and leave all alone for awhile, most of the lime will settle to the bottom of the vessel, and the remainder will dissolve and produce a nauseous tasting liquid, which if chemically tested will prove to be alkaline in reaction. If it is at once carefully poured off, and kept in a well corked bottle it will keep transparent for a fairly long time; but if it is left exposed to the air, there will gradually appear upon its surface a thin pellicle or skin, the formation and changes of which I have microscopically illustrated. This film consists of lime carbonate, and to the evolution of similar results in mortar are due the capacities of the latter. The carbonic acid from the air slowly settles into the mortar, and changes the lime into carbonate.

At this point it will be well to state that lime carbonate is the cause of the temporary hardness of some waters—temporary because it can be removed by boiling, whereas permanent hardness, caused by the presence of other salts, cannot be eliminated by heat. The lime exists dissolved in the water as bicarbonate; but when it is boiled it is separated out in a visible condition as carbonate of lime. The scale or fur which settles as incrustations in kettles and boilers is composed chiefly of lime carbonate, and is practically the equivalent of mortar, without the sand ingredient, in a hardened state. Any one who has tested this deposit when it has been at all thick will be aware of its great hardness.

Sand is mixed with lime for a very good reason, though it is not altogether obvious. It not only helps to consolidate the entire mass and render it integrally cohesive; but it helps to maintain, for a sufficiently long time, a porosity in the mortar paste for the steady admission of air, from which the carbonic acid is absorbed.

Imagine that we could paint over each grain of sand with a layer of lime paste. As this stiffened it would enclose the grain like a kernel, and itself be a tightly fitting shell. Then, before the paste is dry, stick all these limed grains together side by side in a heap. That would be tantamount to mortar as it is made in the usual way; the sand becoming enveloped with hardening lime films.

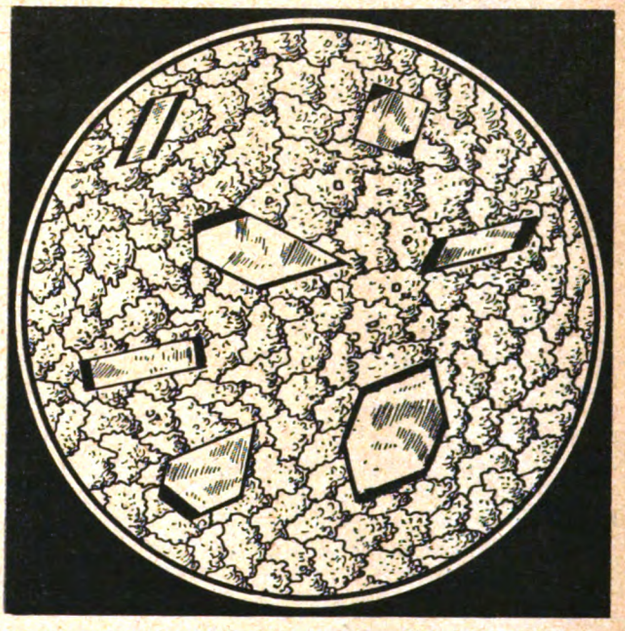


FIG. 2.—One twenty-fourth inch area of the mortar lime carbonate film at a later stage, when it has broken up smaller, and crystals have evolved between the flakes. (Magnified.)

The thin film which forms on lime water is at first soft, and merely plain and glassy-looking, but is faintly speckled with nominally invisible scraps of lime. It wrinkles up prettily, but the minute curly figurings are simply folds or waves due to shrinkage. As these creases flatten out the film cracks in several places, and presents an irregular pattern, as shown in Fig. 1. The film may then be described as gelatinous, without the properties of a jelly.

Some parts next contract away from the others, and all break up into smaller pieces. Simultaneously beautifully shaped, slab-like, transparent crystals, and tinier opaque ones occur in the interstices between the crinkled portions, as shown in Fig. 2. These crystals may eventually break up or redissolve.

The next stage is the disintegration of the crumpled pieces of skin or film, and the development, principally

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from their modifications, of entangled interlacing crystals of the kind shown in Fig. 3.

These three views depict them with the light shining up through the objects. Bear in mind the actual dimensions of the spaces depicted—mere dots, although they contain so much detail. The whole surface of the film, however wide it is, undergoes the same changes; but one area may be in a stage different from that operating in others, and may merge gradually from one to another.



FIG. 3.—One twenty-fourth inch area of the lime carbonate surface of mortar, in the final stage, when it has completely crystallised. (Magnified.)

Those shown are progressive, and are completed in a few hours. When the lime paste, or putty, itself is examined in a good light the outcomes of these alterations can be observed as bright sparkling objects on a dark background.

It should be noted that the films and their crystals do not consist of particles of lime floated up from below, but are really a different compound, due to the incorporation of carbonic acid.

This film imparts a shining or lustrous appearance to mortar or lime putty, as can easily be demonstrated by spreading some on a sheet of glass and leaving it undisturbed for a while. As the parts beneath the outer film harden in a similar way the whole mass shrinks. The films split; allow air in; and more under films and crystals arise. The same result follows in applied mortar. The outside layers produce their carbonated films and crystals, and these sustain the sand in place; while additional carbonic acid penetrates deeper between the cracks, which are as fine as spider's threads. These facts explain why the older a mortar is the better is its hardness, provided it was well made at first. The denser the outside is, the longer the inside takes to mature, and finally a durable mortar remains.

TOWN PLANNING MOVEMENT IN WALES.*

By CHARLES T. RUTHEN (Architect), Hon. Treasurer, Welsh Housing and Development Association.

As the housing problem was at one time, and not very long ago, looked upon as the especial subject of the dreamer, and is now universally admitted to be the most serious and pressing of all social problems, so town planning, once considered a movement very interesting in theory but impossible in practice, is now accepted as the only real and sane method of escaping in the future the hideous failures of old-time methods of town development.

Ignorance of Town Planning.—Amongst the confusing maze of national and local problems, rendered the more difficult by the various and complex needs and characteristics of particular districts, there stands out pre-eminently the need for some form of town planning. It must, however, be confessed that although the term "town planning" is to a very large extent self-explanatory, and has certainly not suffered during recent years through lack of advertisement, yet there is quite a large number of people, including, unfortunately, many members of public authorities and even their officers, who, although expressing entire approval of the principles of town planning, do not really grasp the full significance and importance of its aims, possibilities, and far-reaching consequences and effects.

All the evils associated with housing, and their name is legion, all the deadly evils due to lack of light and air, the immense sums spent annually upon street widenings and improvements, and many other things, are the outcome of the old-fashioned method of simply allowing towns to "grow." Town planning means to the future citizens of a town or district all that a well-built, planned, and designed home means to the individual citizen. All the difference between a "house" and a real "home"! Few private homes are built piece-meal, adding here and there parts, as necessity arises. Most homes, large or small, be they good, bad, or indifferent, are carried out on some preconceived plan.

Piece-meal Planning.—Not so with towns and districts, however. They have been planned in the past, and unfortunately are being planned to-day, piece-meal fashion. No well thought-out scheme is laid down, but matters are just allowed to "muddle through," as it were. Each owner lays out his particular estate or area as best suits himself, without the slightest regard to the necessities of adjoining areas built or unbuilt, without the slightest regard for the claims of the district as a whole or the necessities of the future. Wide streets exist where narrow ones would suffice, narrow roads exist where wide ones are required. The requirements of a thickly populated industrial community to-day are served, how badly is only too well known, by facilities in the shape of main arteries and other public services that were considered sufficient and perhaps were quite satisfactory for the needs of the town or district in the early stages of its growth.

What Town Planning Means.—Every house should have its own plan, and although it is quite possible to make one plan serve for many houses, a practice unfortunately adopted to an extent very detrimental to the general artistic effect of the modern town, that is not so with a town. Each town must have its own plan. That plan must be "made to measure," and one can scarcely conceive it possible for a plan suitable for one town to fit in with the conceptions of the citizens and the geographical conditions and industrial requirements of another town. The meaning of town planning is just this and no more: that public services in the future shall be laid down with an intelligent anticipation of the future needs of a community. That a district shall not be allowed simply "to grow" in a kind of haphazard, sufficient-for-the-day manner, but shall be planned in a broad, comprehensive fashion.

Arteries that are intended to become the main traffic links through towns and between districts, to carry the heavy and fast traffic of the future, shall be made of ample width and of the easiest gradients. Areas for residential purposes shall be laid out in a manner providing that the amenities of the district are fully preserved. The general lay-out shall also provide the most healthy of aspects and outlooks for the houses to be built. The main drainage shall be considered with a view to future needs. Open spaces shall be provided, schools, churches, and chapels well placed, and all the other necessaries so essential for the comfort and health of a community, together with the facilities for its commercial prosperity, laid down at the beginning upon well and carefully considered lines.

Community Control.—Shortly it may be said that the community shall control, and through its proper repre-

* From the Welsh Housing and Development Year Book, 1917.

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sentative authority, direct the development and growth of a district with a business-like eye fixed upon future needs and demands. More light and air; more freedom and accessibility; and more beauty—this is the creed of the modern town planner.

Town planning is not the laying out of a given area so that upon paper the design "looks pretty"; but is in fact the broad planning of an area, be it large or small, so that all developments shall proceed upon well-defined and well-conceived lines, controlled and directed. In this manner expenditure on the acquisition of property for street widenings, the purchase at high figures of land for open spaces, the existence of narrow, dangerous main arteries or wide, meaningless private thoroughfares, the clearance of slum properties, and the existence of crowded unhealthy areas—all these, together with many other difficult problems, will disappear, and towns and districts will be planned and their development directed by a controlling body.

Many people imagine that town planning is something which applies only to large towns, to crowded areas, and to busy commercial communities. Others imagine town planning to be a kind of area planning applicable to level areas only. Both these ideas are entirely wrong. In fact, it would be more accurate to suggest that town planning applied to smaller towns would be effective in a much shorter space of time, for development on a large scale would not have taken place, and the opportunity of directing development would consequently exist. Therefore, the younger the district the more effective and the more beneficial will be the application of the principles of town planning.

Town Planning of Hilly Districts.—Again, town planning is in many ways much more necessary in hilly districts than in flat districts, for the geographical conditions render isolated area planning more disastrous. Future improvements are rendered almost impossible by disconnected and disjointed, haphazard hill-side planning. Perhaps the most important feature of hilly districts, rendering comprehensive regional planning so essential, is that the main arteries, destined to carry the growing traffic of a thriving neighbourhood, are for the very reason of the physical conditions, the old narrow valley-highways laid down upon the limited flat ground at the base of the valley. It is therefore of the utmost importance to a district like South Wales that town planning on the most extensive scale should be adopted.

The scattered, crowded mining villages in the valleys, huddled round the pits and works, have produced very special and very difficult traffic problems. These products of old-style planning are outstanding examples of the need of a better system. The main arteries referred to, designed originally as accommodation roads for farmers, have now become the only means of communication from one busy district to another, for heavy and light, and for slow and fast traffic. They are narrow to a dangerous degree, tortuous and devoid in many instances of foot-ways, besides being flanked by small properties, most of which abut immediately upon the carriage-way.

Hillside Roads.—The newer streets, on the other hand, are outstanding examples of the rigid application of most unsuitable modern by-laws. Wide streets are perched upon the hill-side, and are almost, and in many instances entirely, inaccessible to, therefore neglected or nearly so by vehicular traffic. These modern by-law streets are provided with a carriage-way of width and formation in striking contrast to the much-used and overloaded main thoroughfares. The footways are fit for a boulevard, and are constructed in a manner suitable to the pedestrian traffic of a city main thoroughfare, although used only by the immediate residents of the hill-side street.

Such in broad outline are the present-day anomalies of town development in these difficult areas. It is therefore exceedingly unfortunate that the powers conferred upon local authorities by the Housing and Town Planning Act of 1909 have so strangely been passed over in a district so difficult geographically and where the peculiar industrial conditions render the natural difficulties more acute. The ordinary by-laws simply magnify and accentuate the problems created by the physical configuration of the ground.

The general appearance of many of the South Wales mining districts would lead one to imagine that difficulties had been actually designed, so successful have some of the general lay-outs been in rendering reasonable industrial extension most trying and difficult. Until recent years the homes of the people appear to have been considered not worthy the thought of those responsible for the development of a district. Hideous is the only term one can apply to the result of past methods of town extension. The most beautiful in nature appears to have brought out the most ghastly efforts of mankind.

Neglect of Town Planning in Wales.—The measure of the neglect by Welsh authorities of town planning will be appreciated by a careful study of the following table, viz.:—

	England	Wales and Monmouthshire
Area (acres)	32,209,803	5,127,734
Population (1911 Census)	33,649,571	2,420,921
Number of Local Authorities possessing Town Planning powers ...	1,633	189
Number of Local Authorities preparing schemes	70	4
Area to be Town Planned (acres) ...	162,192	5,379
Area to be Town Planned per 1,000 acres	5·035	1·041
Proportion of Local Authorities preparing schemes to total number of Authorities	1/16	1/47
Number of Acres to be Town-Planned per 1,000 population ...	4.8	2.2

Reasons for Neglect.—The reasons for this neglect are simple, and may be classified under three distinct heads:—

1. The apathy of Councils and their officials.
2. The lack of town planning knowledge and ability.
3. The absence of a town planning method appropriate to the peculiar Welsh conditions.

There appears to be a general approval on the part of local authorities of the principles of town planning, but most of such authorities appear to consider that some other district needs attention and not their own. This view is possibly strengthened by the fear on the part of the officers to branch out into what would undoubtedly revolutionise present-day methods.

Many people prefer to take the line of least resistance, or, in other words, "let sleeping dogs lie," lest they may become the special object of attack. Such people would say, "Things have gone on so long in the old way, let them go on a little longer as they are." This is without doubt the unfortunate creed of many of our administrative authorities to-day. "Put off the evil day" is practically the attitude of most of the authorities. Rather one would suggest, "End the evil day," and begin a new era. This would be the aim if the great and lasting advantages of the new methods were only fully and intelligently grasped.

Welsh Difficulties.—There may be, and no doubt there is, an absence of town-planning ability in this country, or shall one say a scarcity of such ability? This new science has few experts to guide local authorities in the right way. Further, the peculiar physical characteristics of Wales and the nature of its industries call for the application of methods of town planning almost entirely different from those applicable to other parts of the British Isles. It is therefore in some degree excusable that the Welsh districts should be somewhat slow in coming into line with other parts. The urgency of town planning in Wales is of such great consequence that one is inclined to urge in the strongest possible manner upon members of local authorities and their officers the extreme importance of a serious and concentrated study of the questions and problems involved.

Town planning in Wales may be considered as falling into four main divisions:—1. The planning of rural areas. 2. The planning of the mining valleys. 3. The planning of South Wales coastal regions. 4. The re-planning of existing towns.

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1. The town planning of rural areas is necessary for the development of agriculture and other rural industries, assisting in this way the great movement towards rural reconstruction.

Town Planning the Valleys.—2. In town-planning the mining valleys the following important points must be considered:—

(*a*) The laying down of main communication roads in the valleys, with due consideration to the future development of industries.

(*b*) Inter-valley communications for the proper linking-up over the hills of one valley to another.

(*c*) The proper and practical planning of hill-side areas, with a narrow type of service roadways, winding up the hill-side at reasonable gradients. The planning of level streets where possible and the proper connecting-up of these streets with communication roadways of practical and reasonable gradients following the contours and not striking up the face of the hill at right angles. The adoption of different by-laws enabling local authorities to approve of narrow roads upon hillsides, and of lighter and cheaper forms of construction. These narrower roads would be planned oftener than the roads now required by local by-laws. The greater the vertical rise from one hill-side street to another the more difficult is the satisfactory planning of connecting roads.

House Plans for Hilly Sites.—(*d*) The adoption of an entirely different type of house plan for hill sites, admitting of a greater frontage (say a type of double-fronted house) and a considerably lesser depth, than the present-day stereotype plan. Generally, also, the introduction of a more sensible type of house plan providing that a larger proportion of the house shall have a pleasant aspect and a bright outlook. The burying of the housewife's working rooms and the family living rooms in the face of the hillside is quite unnecessary as well as undesirable. Roughly speaking, the houses should be doubled in frontage and halved in depth. All premises should be where possible under the main roof, and preferably there should be no long outbuilding. If the same principle is adopted in reference to the site, *i.e.*, double frontage and half depth, the superficial area both of the site and of the house itself would remain unaltered.

Economies of Wise Town Planning.—This improved form of house plan would effect a great saving in excavation and dead-walling, and the house would be far more cheerful and healthy. The further saving in the reduction of widths of streets and costs of formation would result in cheaper and more satisfactory building. These improvements added to a limitation of the number of houses to the acre would produce a built-up hill-side of artistic appearance viewed from the valley, instead of the miserable appearance produced to-day by the towering, unsightly backs of rows of houses whose fronts face the houses on the upper side of the street.

(*e*) The building of houses upon the upper side only of each hill-side roadway, with an outlook over the gardens of the houses in the street next below.

(*f*) The building upon slopes facing south, south-west, or south-east, wherever practicable, and the reservation of all northern slopes, which are too sunless to be healthy.

(*g*) The preservation of amenities; for example the prohibition of colliery heaps, the compulsory planting of existing tips, the prevention of river pollution, and of smoke and dust evils, the preservation of trees, and the planning of recreation grounds.

(*h*) The planning of hill-tops and their satisfactory development by the laying down of tramway systems, cable or otherwise.

(*i*) The need for town planning new colliery areas in the anthracite district and near the south outcrop of the steam coal area.

Evils of Unsuitable By-laws.—The proper planning and development of hill-sides and hill-tops is a matter of vital importance and should be undertaken without any further delay. By-laws designed for entirely different conditions and forced to apply to circumstances for which they are totally unsuited, have been responsible for the most terrible examples of hill-side development. The difficulties of the housing problem have by the application of these by-laws been enormously aggravated. Building under such by-laws has been rendered most expensive, and the by-laws themselves have practically been responsible for the origin of cellar dwellings and of the worst forms of over-crowding. The points enumerated under the foregoing sub-heads are well worthy of the serious consideration of all students of town planning.

Town Planning of South Wales Coastal Areas.—3. The town planning of the South Wales coastal area from Chepstow to Carmarthen. The proximity of large areas, south of the valleys, to the coal field, favours factory and works establishment and development, and these areas are in great need of broad town-planning treatment. The great possibilities of this region are not yet fully realised. The advantages are numerous and include free access to the sea, and fine railway facilities. Raw material can be easily imported and native skilled labour is available in normal times in almost unlimited quantities. Land for factory and works sites is also plentiful. The considerable developments which will probably take place in the near future around Newport, Cardiff, Barry, Neath, Swansea and Llanelly, point irresistibly to the need of comprehensive and far-sighted town planning on a grand scale. The further possibility of the establishment of inland water communication between Newport and Cardiff, and of the dockising of the river Neath, are matters worthy of deep consideration. The boundless possibilities in the near future call for the town planning of this vast area with a view to industrial and social requirements. An extensive road system is necessary to link up the various manufacturing areas and to secure easy access to the mining valleys. Such a new road from Cardiff to Bridgend, near the entrance to the rich valleys, is badly needed. There are many other reasons why town-planning should be introduced immediately, so that in the future the value of a preconsidered and bold regional plan will be felt in all departments of life, industrial and home, and the multifarious evils of the "grow as you please" plan avoided in the great industrial communities yet to be established.

Re-Planning of old Towns.—4. The Re-Planning of Existing Towns. Existing towns are also in need of re-planning and partial reconstruction. Such improvements will undoubtedly be of a highly expensive character, but the evils resulting from old-time methods must be removed and the sooner steps are taken in this direction the cheaper will be the process and the earlier will the advantages of the improved conditions be reaped. American municipalities are very energetic in the direction of the improvement of existing towns, for in that very go-ahead country it is realised that good though well-planned new areas may be, much of the advantage to be gained thereby is lost if old areas are allowed to remain in their bad condition. We have in Newport, Cardiff and Swansea striking evidences of the drawback of allowing old conditions of planning to remain indefinitely. Main arteries, bad a generation or two ago, but considered too expensive then to improve, are infinitely worse to-day, and infinitely more expensive to alter.

The widening of a number of the main arteries of these three great Welsh towns should be tackled immediately after the close of the war. There is also an urgent need for great street improvements, and for the establishment of well and boldly planned civic centres in many, indeed in most, of the large Welsh towns. Cardiff in this latter respect may be cited as a model city well worthy of imitation. Although present town-planning powers are clearly inadequate to deal satisfactorily with great re-planning schemes, and especially for the laying down of circumferential roads for the diversion of through traffic in view of great future development of motor transport, yet much may be done to

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guard against repetitions of these difficulties and objectionable features under present powers, leaving future legislation to deal with vital re-planning problems.

Need for Collective Thinking.—There is great need for collective thinking upon Welsh development problems, and these problems are of a special and peculiar character. Solutions must be worked out and schemes evolved by local people having wide experience of the particular difficulties. The Welsh Housing and Development Association has proposed that a standing regional conference be organised to consider the problems essentially peculiar to Welsh conditions. Such a conference would be of immense value to all those responsible for the development of new districts and for the extension of old industrial areas.

Such a "pooling," as it were, of experience is a valuable preliminary to reform. Union in such matters would hasten the passing of special powers undoubtedly necessary to enable some of the vital and important problems to be satisfactorily dealt with. Notwithstanding the need of special legislation, however, many valuable reforms can be effected under existing powers. The particular attention of those into whose hands the administration of existing powers is placed is urgently required. The intelligent and careful study by members of local authorities and their officials of the powers already conferred upon local authorities is extremely necessary. By the application of these powers most of the barriers to industrial development, many important social evils, as well as some of the conditions creating industrial unrest, may be removed, to the great advantage of the present and the lasting benefit of future generations.

CAMBRAI.

By JOHN A. RANDOLPH.

SITUATED on the Scheldt, at the junction of three canals and on the lines—of such vital importance to the enemy—from Ostend to Metz and Liège, it is, in the main, from an architectural standpoint, a disappointing place; old houses are few and the streets mostly narrow and irregular.

Some old fortification gates remain—one of them mediæval—the Porte de Selles, of 1561, alongside the restored and much altered château of that name of thirteenth century date; the Holy Sepulchre Gate, of 1390 (strangely enough not a monument historique, as is the other); and the Valenciennes, or Notre Dame one, of 1623.

The Hôtel de Ville (1634) was restored in 1868-76. The belfry of St. Martin, 61 mètres high, is partly fifteenth and partly eighteenth century.

The Library (40,000 vols.) has among its treasures a Chronicle of St. Denis, with notes by Froissart. The Museum is an important one, and a feature of its ensemble is the pierced renaissance blue limestone railing of 1551.

A fourteenth century doorway of the old "Hôtel St. Pol," a house of the fifteenth, and some arcading of the old Archbishops' Palace (formerly a Benedictine convent), complete the civilian architecture of the town.

The ecclesiastical does not possess much attraction to the visitor. There are, beside the cathedral, St. George's Church (1720-45), with an "Entombment" by Rubens. The tower is 250 feet high, and there is a dome at the crossing, and also a white marble screen and antique oak medallions. Two chapels also exist in the town, the seventeenth century one of St. Agnes, and the eighteenth century one of the Holy Sepulchre, now belonging to and used by the Seminary.

The cathedral, dedicated to Our Lady, is the third on the site. The original twelfth-thirteenth century one, finished in the fifteenth, was a masterpiece of Gothic architecture, and possessed a tall openwork spire. Villard de Honnecourt is stated to have had much to do with the design. A renaissance building in 1802 took the place of it, but it fell a prey to the flames in 1859, and was succeeded by the present building (1860-70), on a larger scale. It is 263 feet long, and very lofty in proportion, but narrow. The north-west tower and spire is surmounted by a crown, over which is a statue of Our Lady.

Cambrai is the seat of an archbishop. It was created in 1559, with suffragan sees at St. Omer, Arras, Namur, and Tournai. In 1801 the Concordat changed its rank to a bishopric, under Paris, the publication of the decree being made on Easter Sunday, April 18, the following year. In 1841 it was restored to the higher rank, with only one see, that of Arras, attached to it. The bishops entrusted the defence of their rights to the Dukes of Burgundy, and later to the German emperors, who were their châtelains.

The League of Cambrai against Venice was formed in 1508 between Maximilian, Louis XIII., Pope Julian II., and Ferdinand of Aragon. In 1529, Margaret of Austria and Louise of Savoy, for Charles V. and François I. respectively, signed the "Paix des Dames."

Spain took possession of the place in 1595, but Louis XIV. recovered it in 1678 by the Treaty of Nymwegen. It surrendered to Wellington in 1815.

Fénélon was Archbishop of Cambrai, and his tomb is in the cathedral (1651-1715).

ART IN LONDON.

AT THE DOWDESWELL GALLERIES.

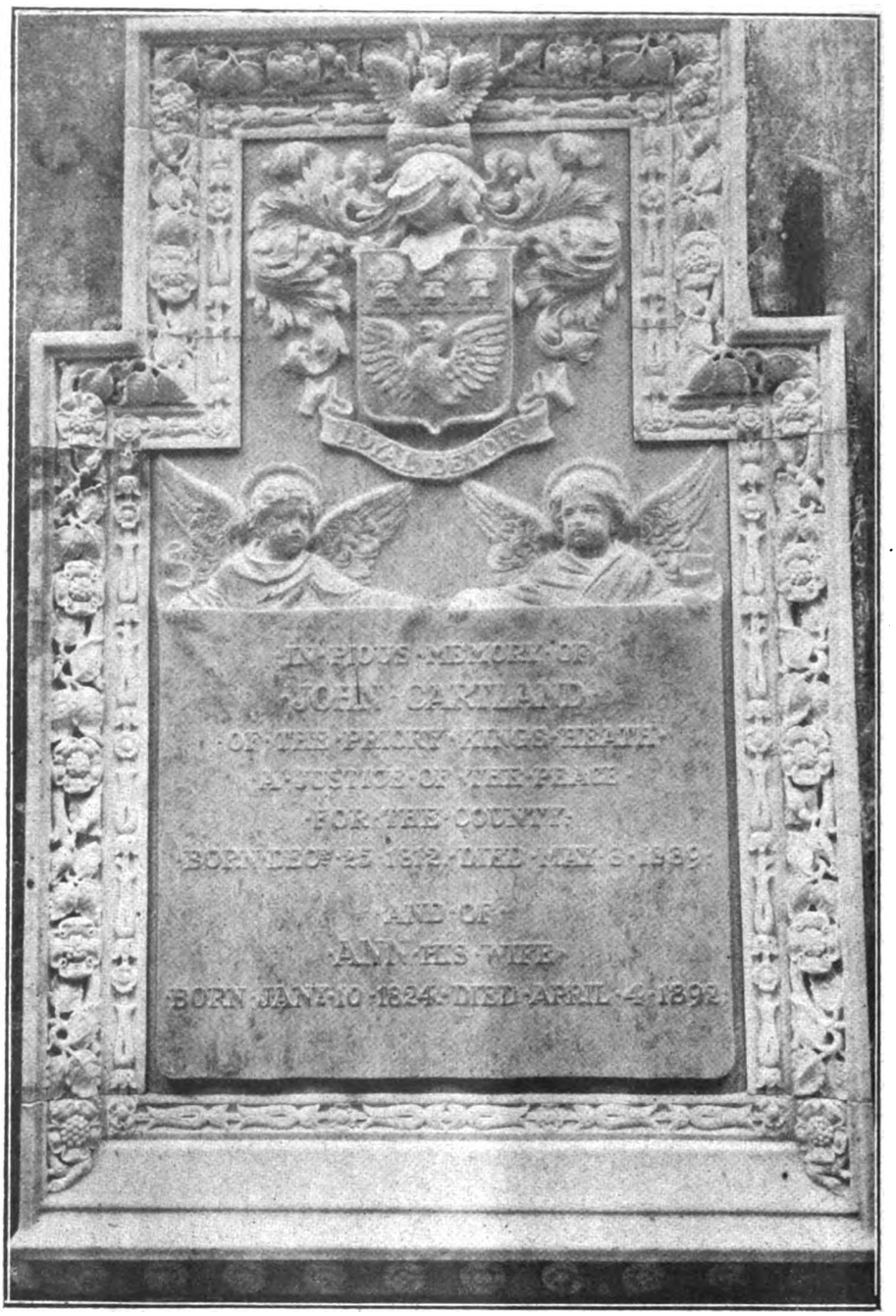
IN a series of drawings and water-colours, M. Victor de Veysy presents to our unadmiring gaze a set of costume designs (ought we to call them "confections," by-the-by?), in connection with which "the love of Columbine" is only a secondary consideration. But no, perhaps this is not quite correct. Columbine Love, the title of M. de Veysy's exhibition, may be sartorial after all, not congenital; it may be the love for bright and harmonious colours, tones, and tints artistically blended together; for many of these costumes bear evidence of the artist's skill in the use of colour. Congenital love, as we observed, is not to the fore, for Columbine is assuredly no party to the osculatory performances observable in nearly every sketch. Harlequin kisses the lady, now on the lips (but not often), now on the neck, shoulder, bosom, hand, forehead, backhead, oh! everywhere or anywhere, and Columbine smirks and suffers it; but enfin, we consider the drawings would be all the better were the lady attractive in looks, and the gentleman less inanely occupied.

There is also, at the same galleries, an exhibition of Belgian art, which has already met with a considerable measure of success, which we are not altogether convinced is deserved. What can be said, par exemple, for such work as M.M. Permeke, Pierre Paulus, Reninghe, Maurice Wageman, Leon de Smet, Jefferys, Fabry, de Sadeleer, and Miss Alice Ronner provide? The landscapes, too, are in general poor. Gladly we recognise some grain amidst the chaff; portraits by MM. Rosier, de Varebeke, Van de Wyer, and sculpture by M. Victor Rousseau show vigour and character; the sculpture is also indicative of the grace befitting its subjects, "Alice" (135) and "A young girl" (129). "Good advice" by M. Gerard Portielje is almost, if not quite, unique amongst genre works of any value; the treatment and composition are Dutch in effect, and the technique is distinctly good and virile. But the exhibition as a whole—ma foi!

LADY BUTLER AND OTHERS AT THE LEICESTER GALLERIES.

IRRESPECTIVE of the artistic merits there is a value attaching to these works by Lady Butler, in that she is devoting the net proceeds of sales to the Lord Roberts' Memorial Fund for workshops for disabled soldiers and

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CARTLAND MEMORIAL IN KING'S NORTON CHURCH, WORCESTERSHIRE.
Designed by Mr. CHAS. E. BATEMAN, F R.I.B.A., Architect. Executed in white alabaster by Messrs. Bridgman & Sons, Sculptors, Lichfield.

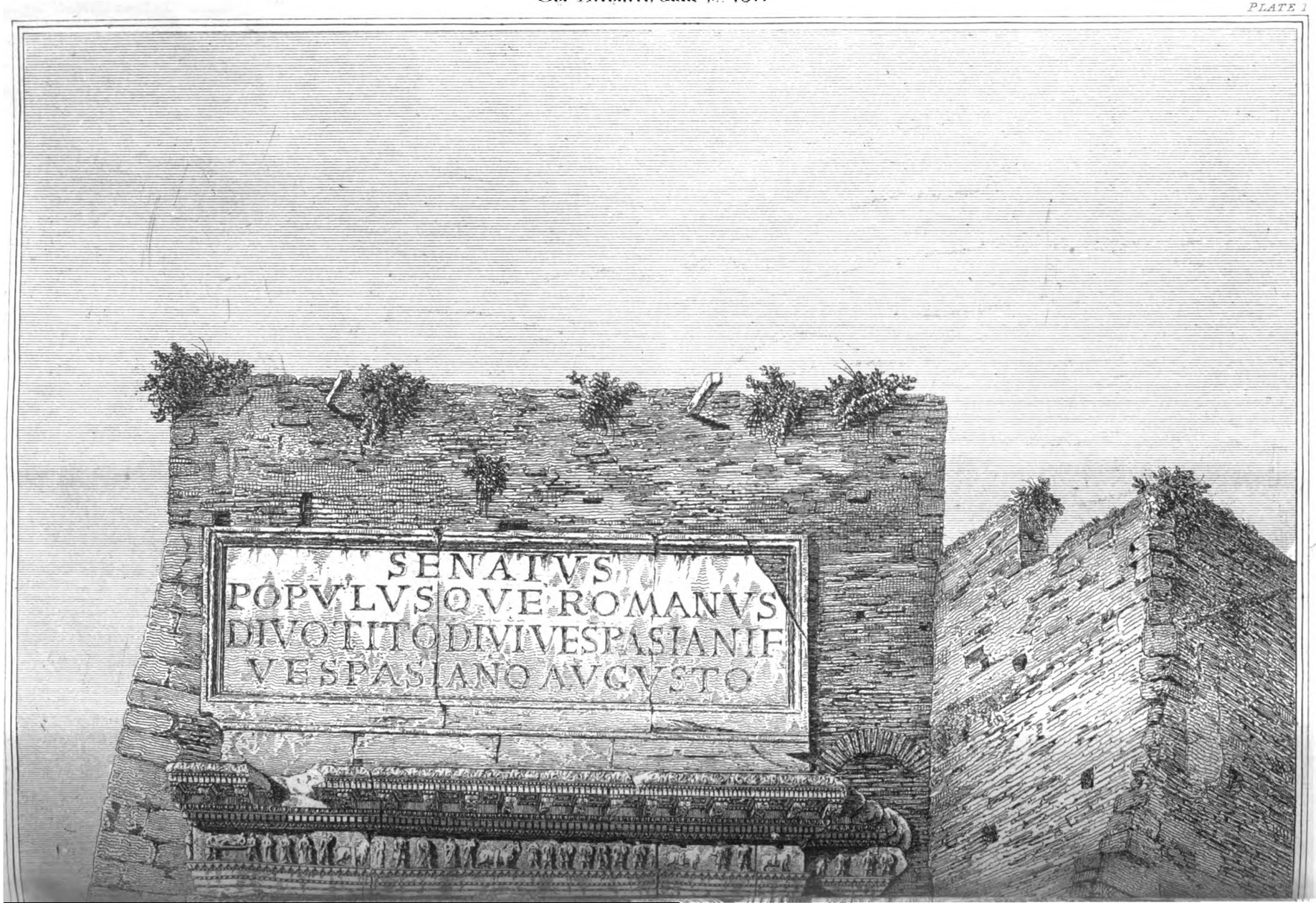
sailors; but our concern here is the Art of this veteran painter (we use the adjective in no invidious sense). Lengthy as is the period of time that she has been before the public, her work suffers no diminution of vigour, of verve, and of colour-values. The technique is always good, and the modelling of the horses is never exaggerated. In No. 22 the noble beast seems almost in motion, pawing the ground and champing on the bit. A characteristic touch noticeable in Lady Butler's work is the concentration of effect in the foremost group, merging all else in a cloud of dust; this is not alone telling in itself, but is doubtless justified in its realism. Her individual studies of soldiers are good, "A V.C. of the Seaforths" being perhaps the best. "Steady the Drums and Fifes," recording an incident at Albuera in 1811, is of the class of "The Roll-call," but must take secondary rank to the latter.

A fine show of war landscapes is provided by Second-Lieutenant E. Handley-Read (M.G.C.), late Artists' Rifles, who has been able to approach his subjects with the seeing eye and understanding mind of an educated man. These water-colour drawings are not only examples of capable draughtsmanship, but also have a decided analytical value of their own; the best of a really fine collection are (No. 26) "A Well-known Spot near Arras," "Contalmaison from the Sunken Road," "A Tank in High Wood" (35), "Sunshine and Rain, Albert," "Another Taube" (18), and "Richebourg l'Avoué."

Captain Philip Connard, R.F.A., we cannot congratulate upon his exhibits. Distance does not lend enchantment to the view; these are not war pictures (a welcome change, we admit), but the effect of many of them is as excruciating as any battlefield horrors could provide. Regard "A Woman Reclining," which almost suggests martyrdom, such as Saint Simon is said to have suffered. There is, in general, a hardness and harshness of technique, a crudity of colouring, an elementariness of modelling, which relegate this exhibition of Captain Connard's

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ARCH OF TITUS, ROME

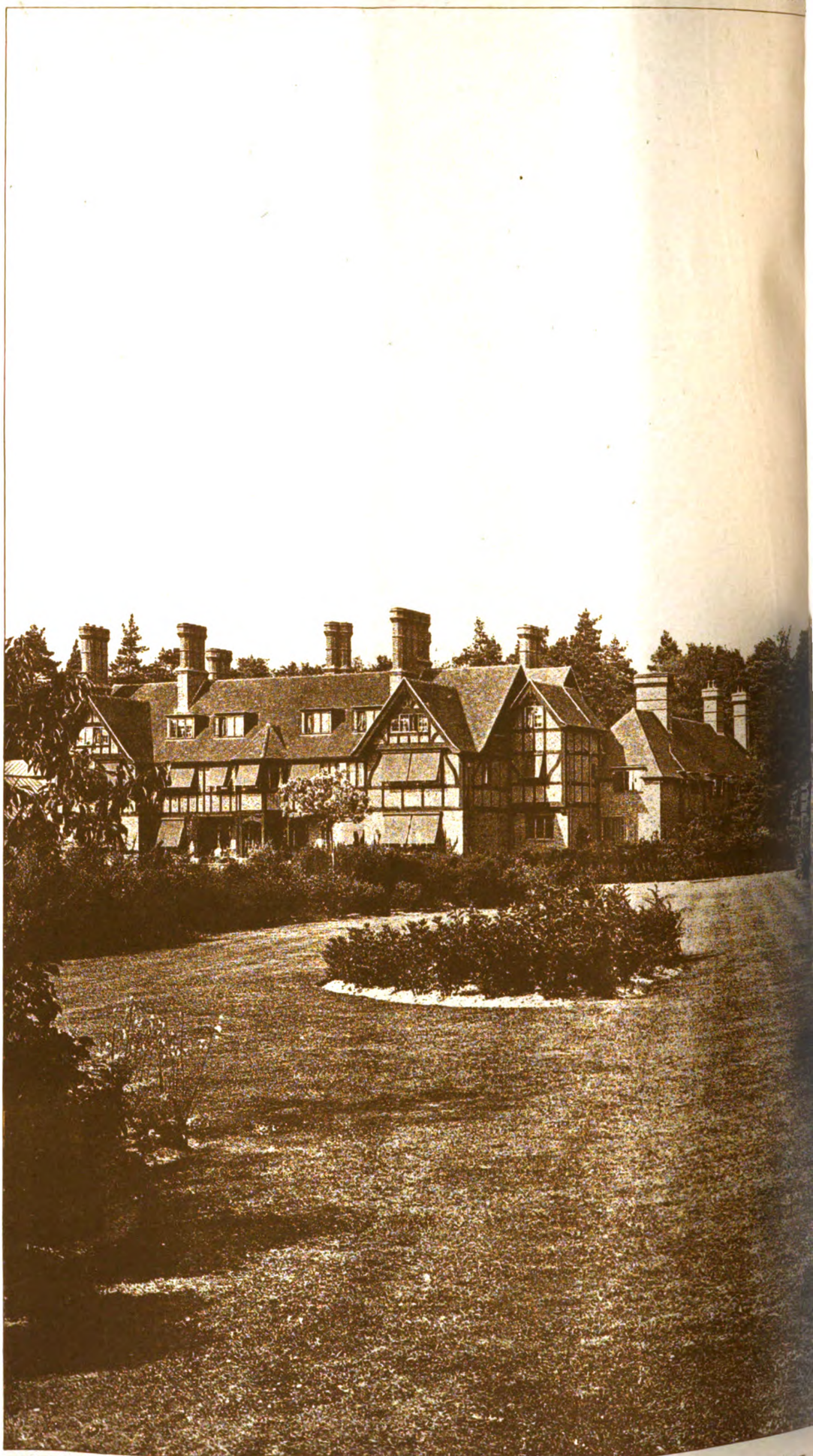
View of the East Side towards the Colofseum.

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PHOTOGRAPH BY BEDFORD LEMERE & Co 147, STRAND, W.C.

HINDHEAD COURT,

Mr. JOHN H

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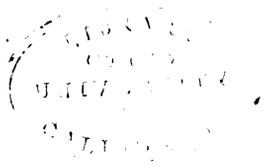
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...ERE. PERGOLA.

...Architect.

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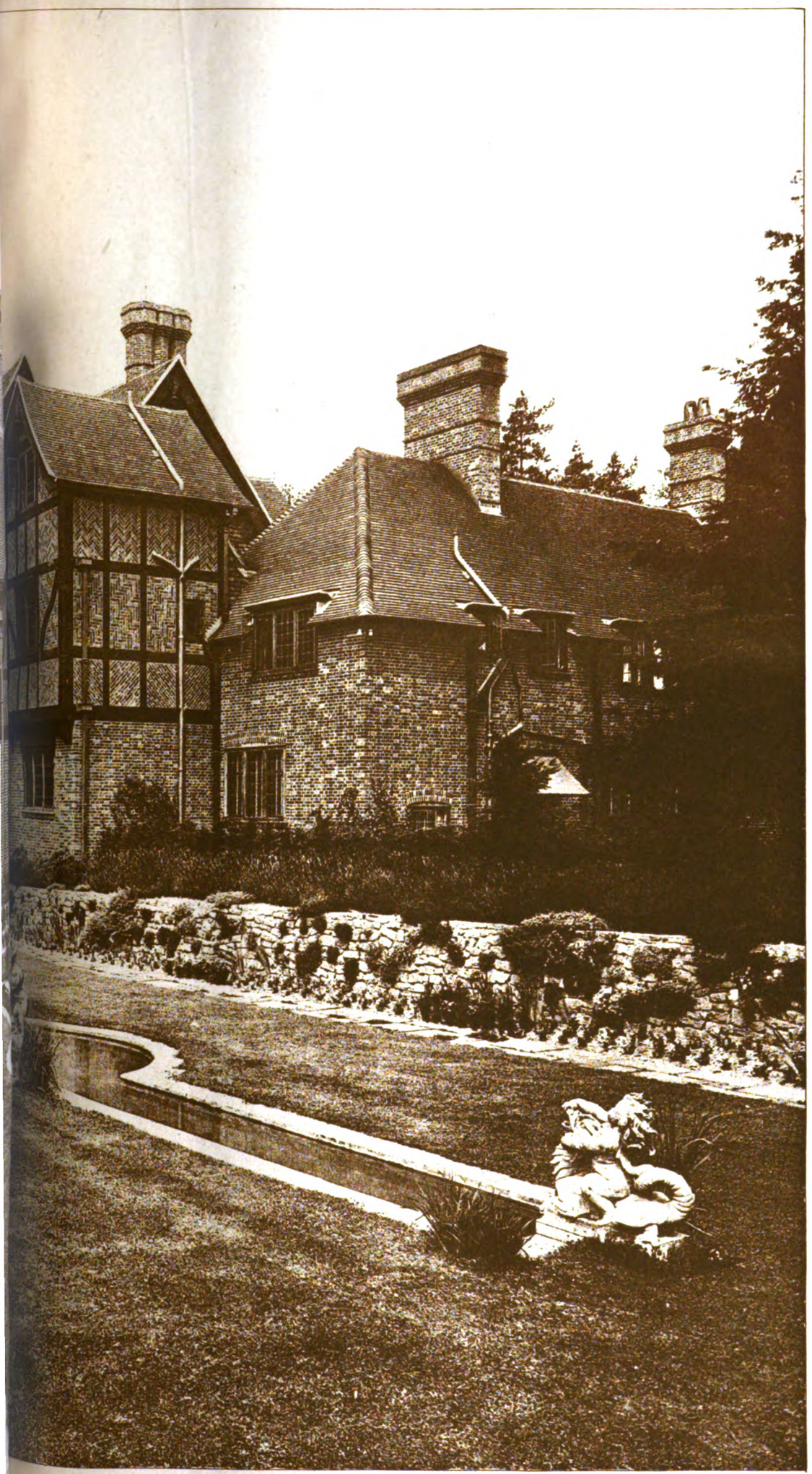


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HINDHEAD COURT, HASLEME

MR. JOHN

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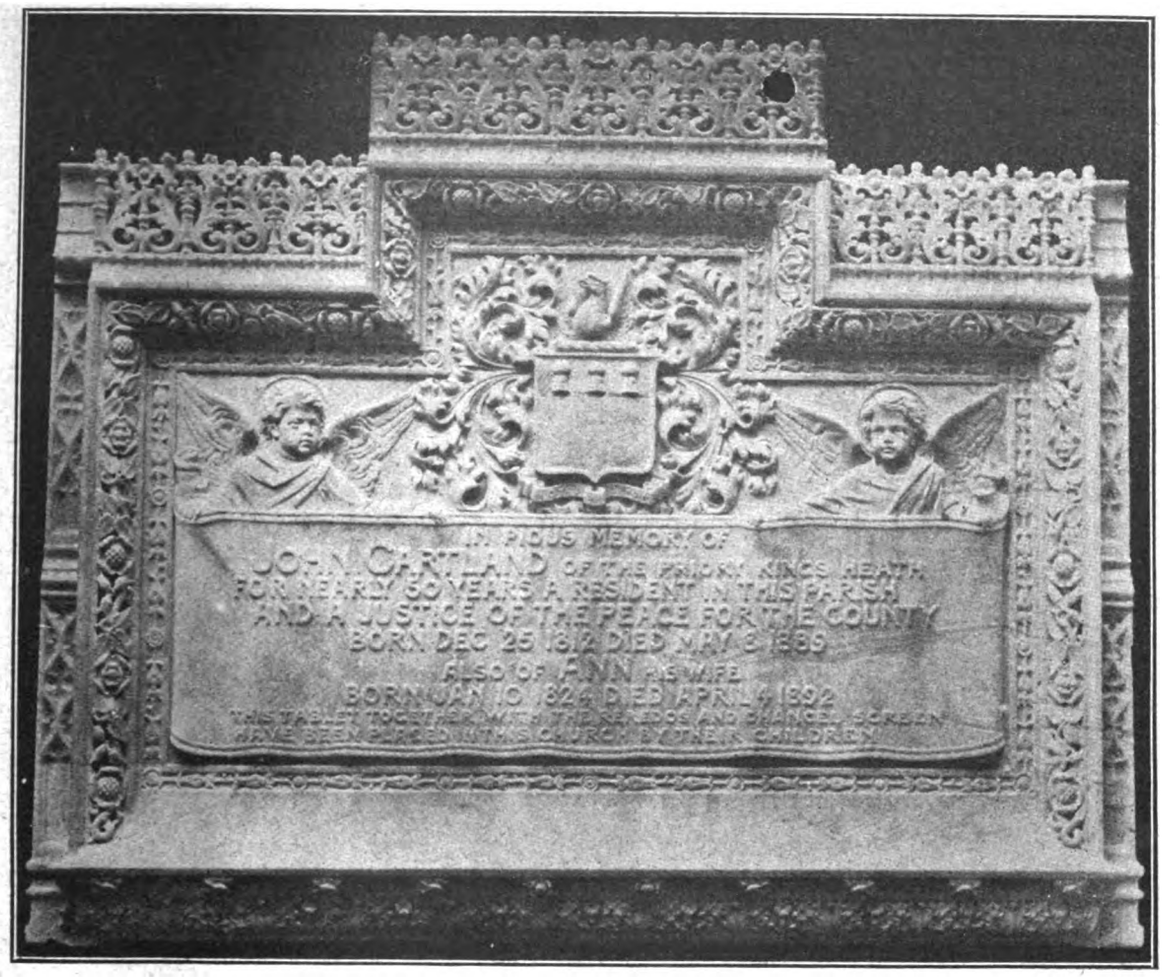
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ERRACE AND SUNK GARDEN.

D, ARCHITECT.

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CARTLAND MEMORIAL IN KING'S HEATH CHURCH, WORCESTERSHIRE.
Designed by Mr. CHAS. E. BATEMAN, F.R.I.B.A., Architect. Executed in white alabaster by Messrs. Bridgman & Sons, Sculptors, Lichfield.

works to a place far in the background. We know that the artist has his admirers, for whom we can but feel regret that their appreciation of Art should be so slight and elemental.

TIMBER TRADE CUSTOM.

On Friday in Wolverhampton County Court his Honour Judge Howard Smith gave judgment in the case in which William Roe, builder and contractor, Hartley Street, Wolverhampton, was the plaintiff, and R. A. Naylor, Ltd., timber merchants and importers, Warrington, were defendants. The object was to recover £41 10s. damages for alleged breach of contract.

Plaintiff's case was that in February 1916 he gave Mr. Jones, defendants' agent, an order for the supply of certain timber at a specified price. Nothing was said about conditions, but later defendants intimated they could not supply the whole of the timber. Plaintiff insisted on the contract being carried out at the agreed price. Two items ordered on February 11 were delivered, but plaintiff purchased in the market as regards two other items, and the difference in price was the amount sued for.

It was urged for the defence that on a document delivered to plaintiff on February 12 were the words "Goods are sold subject to their being in hand and at liberty when the order reaches the head office."

On the other hand, it was submitted that the condition was not brought reasonably to plaintiff's notice, and plaintiff said he did not look for any conditions because he never expected any, and he regarded the document as confirmation of the verbal contract of February 11.

The case went to the Divisional Court, and Mr. Justice Bailhache and Mr. Justice Atkin, in directing a new trial, considered the only question in the case was whether the printed clause on the document was so printed that from its position, size of type, &c., an ordinary person reading the document with proper care might not miss it. If the buyer could show that he could not reasonably be expected to see the clause he could not be held to be bound by it.

When the case came before the County Court Judge on May 17 it was urged on behalf of defendants that in addition to the fact that a similar condition to that which they imposed was put upon "sold notes" by other importers of timber and timber merchants when dealing with people who gave orders to travellers and did not go direct to yards to see if the timber which they required was actually available, it was a custom recognised throughout the trade that goods could be expected only if they were in hand when orders reached headquarters.

In his judgment, on Friday, his Honour said he never meant to hold there was any duty on the part of defendants to point out the conditions on the sale note, but he thought that the plaintiff failed to discover it because defendants printed it in the smallest type and placed it in a position where an ordinary business man would not have expected to find it. Unfortunately he worded his findings so as to create a doubt in the learned judges. He meant to find then, as he found now, that having regard to the very small print of the conditions and the position in which it was placed, an ordinary business man, acting with ordinary care, would have failed to notice it, and he could be excused for not having done so. Although the case was sent back for a new trial on the one point which he had mentioned and dealt with, defendants, as they were entitled to do, relied on the alleged custom of the trade, that contracts for the delivery of timber made by travellers were subject to the goods

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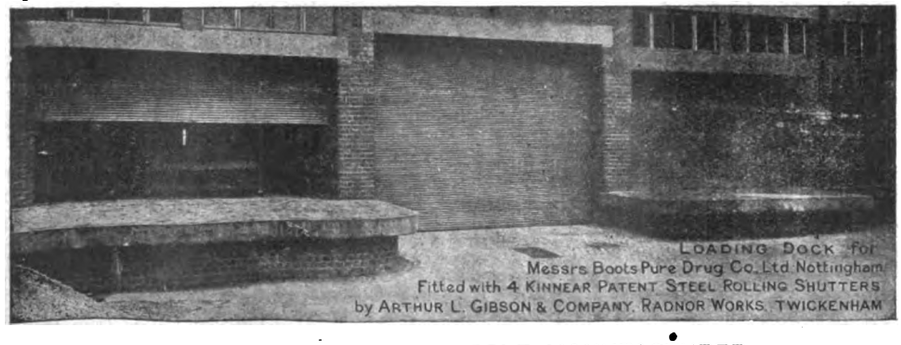
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being unsold by their principals. Defendants had called many witnesses to endeavour to prove this custom. He had considered the evidence of those gentlemen with the attention and respect it deserved, but it had failed to convince him. If another tribunal took a different view he should not quarrel with its decision, for there was evidence on which they could properly come to another decision. The onus was on defendants to prove the custom. He had grave doubts as to its certainty and universality, and even if the conditions before referred to did not appear on the sale notes or quotations, he should still have doubts as to the alleged custom applying to the whole of the timber trade, and therefore he had to find that it had not been proved.

Judgment was given for plaintiff for the agreed damages as before, and costs on the higher scale were granted.

INCORPORATED CHURCH BUILDING SOCIETY.

THE Annual General Court of the Incorporated Church Building Society was held at 7 Dean's Yard, Westminster Abbey, on May 24, the Hon. Sir E. P. Thesiger, K.C.B., in the chair. Among those present were: Lieut.-Colonel the Hon. G. H. W. Windsor-Clive, Sir Edwin Grant-Burls, C.S.I., the Rev. C. F. Nolloth, D.Litt., J. E. Ollivant, Esq., the Rev. A. G. Ingram, the Rev. K. R. Powell, R. E. Bill, Esq., and the Rev. T. T. Norgate, F.R.G.S., F.R.Hist.S. (secretary).

To fill vacancies on the Committee Mr. W. Joynson-Hicks, M.P., and the Rev. Canon G. R. Bullock-Webster were elected. The Society has recently inaugurated a special fund to assist in providing churches and mission buildings, temporary and permanent, in some of the munition areas where they are urgently needed.

As instances were cited a large permanent church for an area created by the enormous expansion of the aircraft industry; a smaller one for a population resident in a new district where small arms are being manufactured; and many others of a similar character. The Committee earnestly appeals for donations towards this fund.

Correspondence

[The Editor will not be responsible for the opinions expressed by Correspondents.]

Field Glasses for Officers.

SIR,—May I beg for a small space in which to point out the urgent need of field-glasses for the use of officers and men on active service. The response to the appeal made by the Manager of Lady Roberts' Field Glass Fund, National Service League, 64 Victoria Street, Westminster, has been most generous, enabling over 27,000 pairs of glasses to be issued, but the need is as urgent as ever. May I suggest that, as we are at a crucial stage of the war, and that as every glass lent may be the saving of many lives, all who have field-glasses, telescopes, or even powerful opera-glasses which they are willing to lend should communicate with the Manager, Lady Roberts' Field Glass Fund, 64 Victoria Street, Westminster, S.W. 1.

I would suggest, too, that the appeal should be extended to America, whence, no doubt, a generous response would be received.—Yours, &c.,

A VETERAN MEMBER OF THE H.A.C.

THE question of providing additional accommodation at Peppard Hospital, Berks, has been raised in view of the increasing number of discharged soldiers suffering from tuberculosis requiring treatment, and a preliminary inquiry at Peppard, in conjunction with representatives of the Bucks County Council, has been suggested.

BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders, the address is, as a rule, local.)

ENGLAND.

DEVON.

Barnstaple.—No. 96 Newport Road: alterations. Mr. B. Oliver, architect, Bridge Buildings.

DURHAM.

Annfield Plain.—Warehouse, West Road, for Messrs. Rossi Brothers.

Brandon and Byshottles.—Isolation Hospital. Council surveyor.

Hebburn.—Nos. 1 and 3 Makendon Street: alterations for Mr. N. Carr.

ESSEX.

Upminster.—Twelve cottages, Cranham Lane, for Messrs. W. P. Griggs & Co., Ltd.

LEICESTERSHIRE.

Ashby-de-la-Zouch.—Proposed R.C. Church.

SHROPSHIRE.

Shrewsbury.—Rowley Church, Worthen; re-erection. Isolation Hospital. Borough surveyor.

SUSSEX.

Chichester.—County Hall; additions and alterations. Mr. Clyde Young, F.R.I.B.A., architect, 6 Lancaster Place, Strand, London.

WARWICKSHIRE.

Rugby.—No. 4 Building: extension for the British Thomson-Houston Company.

Seven houses, Kew Road, for Mr. E. Robinson.

Picture Theatre, Bank Street, for Mr. T. Cannon.

YORKSHIRE.

Barlby.—Council School.

Barnsley.—Technical School.

Beverley.—Warehouse, Holme Church Lane: extensions for Messrs. Overton Brothers.

Works, Priory Road: addition for Messrs. Hodgson & Sons.

Dewsbury Moor.—St. John's Church: proposed chapel.

Halifax.—Ebenezer P.M. Church: proposed extension.

Horbury.—Proposed Sunday School.

WALES.

Cardiff.—Two houses, for Messrs. Williams & Hoare.

Swansea.—House, Fern Street, Cwmbwrla. Messrs. J. & F. Weaver, builders, Manselton.

SCOTLAND.

Aberdeen.—Pump house, &c., Tillydrone Road. Messrs. Jenkins & Marr, architects, 16 Bridge Street.

Nos. 12 and 14 St. Nicholas Street: alterations. Messrs. Kelly & Nicol, architects, 367 Union Street.

No. 199 Union Street: alterations. Mr. G. B. Mitchell, architect, 148 Union Street.

Nos. 69-75 Powis Terrace: alterations. Mr. George Watt, F.R.I.B.A., architect, 17 Union Terrace; also

No. 33 Summerfield Terrace: alterations.

Glasgow. — Shops, Mannering and Pollokshaws Roads: conversion into houses. Mr. John Allan, builder, 567 Cathcart Road.

Smithy, Linthouse: alterations for Messrs. A. Stephen & Sons, Ltd.

Smithy buildings, Fairfield Yard: additions and alterations for the Fairfield Shipbuilding and Engineering Co., Ltd.

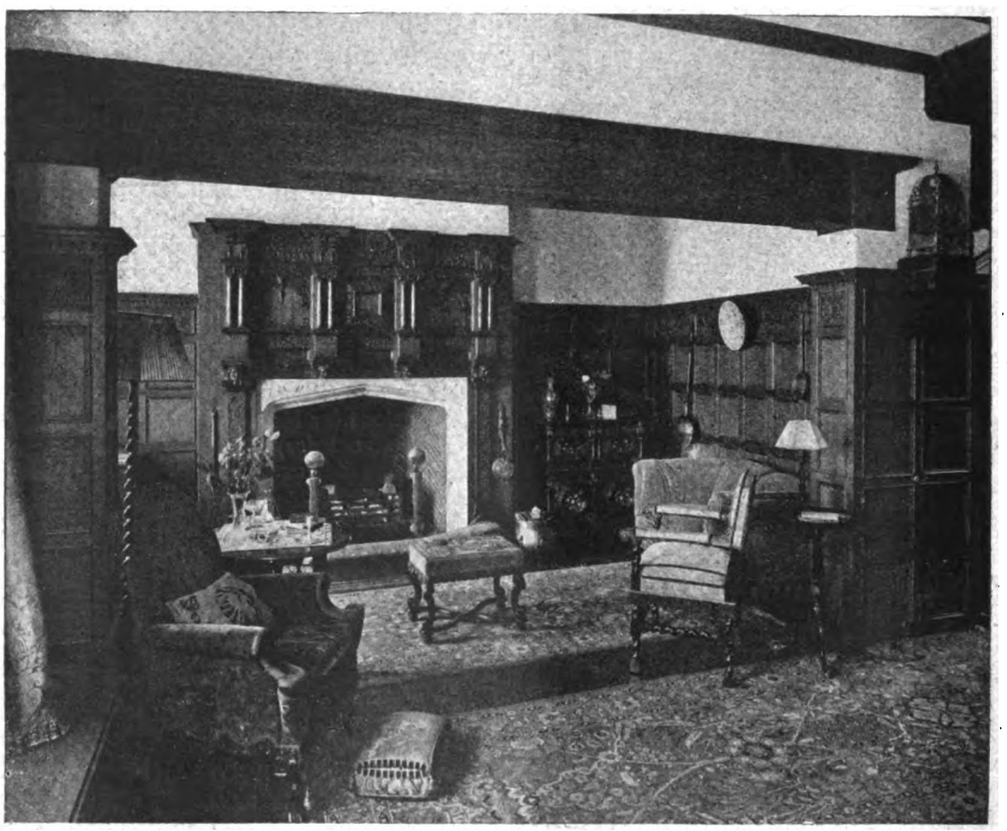
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THE ARCHITECT

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FORTHCOMING EVENTS.

Saturday, June 9.

Edinburgh Architectural Association: Visit to Inveresk.

Monday, June 25.

Royal Institute of British Architects: Presentation of Royal Gold Medal.

Thursday, June 28.

Institution of Municipal and County Engineers: Annual General Meeting (three days), at the Town Hall, Hastings, commencing at 10.30 A.M.

Saturday, June 30.

Edinburgh Architectural Association: Annual Excursion to Dunfermline.

Wednesday, July 4.

Royal Archæological Institute:

ARCHITECTURE AT THE ROYAL ACADEMY.—IV.

CONTINUING our review of the domestic architecture of the year, or rather of that exhibited this year at the Royal Academy, we come to Mr. Edward Warren's "Townsend House and Estcourt House, Kensington Palace Gardens, and Hanover House, Regent's Park" (1382), a collection of three photographs in a single frame of the exteriors of what are evidently blocks of flats, carried out in brick with stone dressings in refined renaissance detail. Mr. Arthur T. Bolton, in his "Lyne Grove, Virginia Water, Surrey" (1381), gives evidence that he is one of the "heirs of all the ages" by the freedom of his treatment of classic detail in the external view of the portico to Lyne Grove, a combination of stone piers, pilasters, and columns of Greek Ionic manner, with a pulvinated frieze in some material not clearly defined by photography, which, of different colour tone to the stone, may be in plaster or timber. A second photograph shows an internal view of new corridor on the first floor, a study of intersecting barrel vaulting in plaster.

In a rather spotty water-colour drawing, Mr. Walter R. Jaggard gives us a view of the front elevation of "Entrance Courtyard, Farlingford Park" (1378), carried out in red brick, ironstone, and half timber, with tile roofs, a picturesque composition which in execution will be improved by the mellowing hand of time. "The Whiteley Homes" (1377), by Mr. Mervyn E. Macartney, appear to be the stable buildings of this foundation as shown in photographs taken whilst the environment is still littered with the débris of construction.

A pleasing photograph on rough cream paper shows a general view of "Littlecourt, Northants" (1375), by Mr. Walter Cave, a large stone house of true Northamptonshire flavour, with a sturdy square tower, gables, and mullioned windows. Mr. Frank Rimmington's "Entrance Porch, 31 Rodney Street, Liverpool" (1374), is an excellent study of English renaissance detail, with free-standing Ionic columns for the projecting porch, and Doric as supports to the semi-circular headed doorway with its fanlight.

The "New Laboratories at Wisley for Royal Horticultural Society" (1370), by Messrs. Pine-Coffin, Imrie & Angell, are shown in a brown-ink drawing by Mr. Raffles Davison to be treated in an appropriate farmhouse manner with plenty of half-timber and tile and cut-brick chimneys. "Redcote, Haslemere" (1412), by Messrs. Alfred H. Hart & P. Leslie Waterhouse, appears in a water-colour drawing to be carried out with a stone ground floor and hung tiling above, stone mullioned and transomed windows giving character to a well-designed exterior.

"The Alfred East Gallery, Kettering" (1410), by Messrs. J. A. Gotch & C. Saunders, is shown by a photograph as a component of a charming picture of town scenery, the broadly treated new building, with plenty of plain wall and Doric columns, contrasting with the earlier Free Library and backed by the towers and spire of the church. Mr. John Bilson's "Keldy Castle, Yorkshire" (1414), is a finely situated big stone house with a square tower, giving fine reflections in the pool or lake of a rock garden.

Mr. P. Morley Horder is represented this year by but one drawing, "Campfield Place, Leith Hill: proposed rebuilding" (1415), one of his characteristic white country houses with tile roofs, shown in elevations and plans, including that of the garden, of which its skied position precludes any close study. The "Boys' Garden City, Woodford" (1418), by Mr. William A. Pite, shows ground plan and elevations of two types of residences, A and E, the one with a large dining room and play room, the other with smaller rooms. The elevations, as suggested by the colouring, are in Crowborough brick, with tile roofs and dormers, in which presumably are the dormitories.

Mr. Cecil G. Hare's contribution to the domestic section is "Exterior Alterations, President's Lodge, Queens' College, Cambridge" (1420), which the photographs show to have resulted in a highly picturesque group of half-timber work with oriel bay windows and a thorough seventeenth-century character. "Design for an Island Hotel" (1419), by Mr. F. Milton Cashmore, is a water-colour bird's-eye drawing of white walls and red tile roofs, with quasi-symmetrical disposition but of no great attractiveness. Mr. James A. Swan's "Two Interiors, Summerhill Court, Kingswinford, Staffs" (1422), are photographs of a couple of well-worked-out pieces of internal treatment in panelling, carved woodwork and plaster, one based on seventeenth-century motifs, the other on eighteenth-century with Grinling Gibbons's type of carving, both excellent of their kind if once we admit the rationale of the penchant of some householders for a museum kind of interior. For ourselves we fail to see either the logical or æsthetic justification for making different rooms of the same house serve as specimens of archæological study of different periods of bygone fashions.

Mr. Chas. E. Bateman exhibits a brilliant water-colour drawing of "Little Cumbrae, Millport, Scotland" (1423), a stone house with slate roofs and stone-walled formal gardens, set in a highly picturesque environment. "A Library" (1424), by Mr. Harold E. Mansfield, is an elaborate study in late renaissance detail, in which the bookcases are worked into appropriate architectural constituents of a grandiose interior. Mr. Charles Wade's "Treatment of Entrance and Staircase Hall" (1425) is based on a carved wood screen with broken pediment and elaborately carved coat armour marking the division, but

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not separating the entrance and staircase halls. Both this and Mr. Mansfield's study are water-colour drawings of the type of internal furnishing of which some examples are usually to be found in the Architectural Room of the Royal Academy show.

Three photographs illustrate "A House in St. James's" (1426), by Mr. Ambrose Poynter. The exterior is an irregular composition in English renaissance detail. The interior of the one room shown is an elaborate piece of decoration in the manner of Louis XIV. Mr. George Hornblower's "Additions to Horton Priory, Kent" (1428), are shown by two photographs, one of the exterior, a picturesque composition of rubble stone-walling, Tudor detail, half timber and tile added to some fragments of old Transitional Norman work, the other of the interior of new gallery, with timber and stone features in plastered walls, a justifiable piece of archaism under the circumstances.

One of Mr. E. Guy Dawber's two contributions, "Eyford Park, Gloucestershire" (1429), is shown by photographs to be a dignified and yet piquant eighteenth-century type of stone house, the other, "Boys' House and Masters' Wings: The Lord Wandsworth Institution" (1435), by drawings in ink outline and coloured crayon tinting, an H-planned building with as central feature a well-treated entrance clothed in English renaissance detail. "Normanby Park, Lincolnshire: dining-room" (1430), for Sir Berkeley Sheffield, by Mr. Walter H. Brierley, is shown by photographs to be a stately renaissance apartment, with an elaborate plaster ceiling. The "House in Wiltshire" (1431), by Messrs. Alfred H. Hart & P. Leslie Waterhouse, is a picturesquely situated stone house with half-timbered gables and dormers.

NOTES AND COMMENTS.

THE sentiments expressed and the principles enunciated in the memorandum recently addressed to the National Federation of Building Trade Employers by the National Associated Building Trades Council breathe the true spirit of enlightened appreciation of the best interests of both employer and employed, and will, we hope, be so adopted that the building trade may set an example which all others may follow. The memorandum says:—

This memorandum is the outcome and expression of a desire on the part of the leaders of organised labour in the building industry to render their full share of service towards the creation of a new and better industrial order.

By general consent the old system has proved itself unworthy, and the reasons for its failure are not far to seek. From the days of the industrial revolution the relations between employers and employed have been based upon antagonism, coercion, and resistance.

Under such a system many a forward move on the part of labour towards improved conditions is opposed almost as a matter of duty by the employers' associations, and, conversely, many improvements in the direction of increased production and efficiency are countered by the restrictive regulations of the trade unions; both sides acting, as they believe, in the interests of their members.

The two sides rarely meet except to make demands of one another or to compromise conflicting claims, and negotiations are inevitably carried on as between two hostile bodies. In this way great powers of leadership and willing service are diverted from constructive work into the sterile fields of largely useless controversy.

Whilst the total elimination of such conflict may be quite impossible, the hope of the future undoubtedly lies in the intimate and continuous association of both management and labour, not for the negative purpose of adjusting differences, but for the positive purpose of promoting the progressive improvement of their industrial service, from which alone the national prosperity can be derived.

Industrial peace must come not as a result of the balance of power, with a supreme Court of Appeal in the background; it must arise as the inevitable by-product of mutual confidence, real justice, constructive good will. Industry needs no truce, no compulsory arbitration, no provisions for postponement of disputes.

What it needs is confidence and a courageous forward movement, supported by the constructive genius of both sides in common council. No one engaged in constructive work can fail to respond to the tremendous call of the big job, and the task to be faced to-day is the greatest problem in social engineering that the world has ever seen.

It is believed that the common interests of industry will be found to be wider and more fundamental than those which are still, admittedly, opposed; and it is upon the broad basis of these common interests that the fabric of the new industrial order may be confidently raised.

In any provincial town or city which is not too large to render improbable a public interest in proposals or actions by the governing authority it may be taken for granted that there will be adverse criticism of any measure put forward for the benefit of the citizens. Hence it is not surprising that the Dundee housing scheme comes in for a share of such criticism.* As reported in the "Dundee Advertiser," this may be epitomised as a complaint that the tenants are not getting enough for their money, but even so, many of the critics seem to be suffering from a misunderstanding as to the actual people for whom the proposed houses are intended. Thus, for example, a complaint is made that a "house" with living-room and bedroom is too small for a working man with even a small family. This, in other words, is a renewal of the old fetish that every house or cottage for the working classes should have three bedrooms, ignoring the fact that there are many workers who have no children and who live singly or in couples. This by no means small class are driven to become lodgers, and as such are ruthlessly exploited by smart and enterprising "working men," who take a whole house, make their rent, rates and taxes out of the lodgers, and live themselves rent free. If, as sometimes happens, the lodgers fail them, the householder does not and cannot pay his rent and his goods are not worth distraint. The lodger system is the prime factor of the slum, and we hold strongly that no housing reform is complete which does not provide for the elimination of the lodger and the supply of "houses" with only one or two bedrooms. Another line of criticism of the Dundee scheme advocates the provision of the "parlour" as well as a living-room. For many of the artisan class such a room is no doubt desirable and even necessary, but here again there are very many to whom it would be a white elephant and in whose hands it would develop into a lodger's room. As we understand the intentions of the Dundee City Architect and Engineer, houses of the type with three bedrooms and a parlour are better provided in cottages on garden suburb principles than in tenements in the heart of the city, and with that view we thoroughly agree.

The difficulties that now hedge building operations from the enormous war demand on material are strikingly illustrated by the experience of the deputation from the Dublin Reconstruction Committee to Mr. Edgar Jones, head of the Priority Department of the Ministry of Munitions, and Sir Bampfylde Fuller, Timber Controller. Dublin would, of course, receive "most-favoured nation" treatment, so that it is not surprising to hear that all the steel necessary will be allowed, that lead piping and timber will be obtainable with the strictest economy. On the other hand, copper, zinc, and sheet lead are quite impossible, even for Dublin.

In connection with the meeting of the Nuneaton Borough Council for the expression of gratitude to Councillor Melly, for his gift of an art gallery to the town, the suggestion was made that the local war museum should be accommodated therein. Whilst the provision of such memorials for local commemoration of the great war may be desirable, we should regret to see the absorption of space for this purpose which would be better and

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more usefully devoted to the housing of local art and craft. There is a danger that in the enthusiasm for war museums funds and opportunities for the securing of more highly educational specimens of the artistic craft of the country, and particularly of local industry, may be diverted until these specimens have been transferred across the Atlantic and their retention on their native soil made impossible.

The Board of Education thus express their latest views on the building of open-air schools: As has already been pointed out, the benefits of instruction under open-air conditions are being increasingly extended to all types of special school, and in the revised Building Rules full account has been taken of this development, to which the Board attach great value. At the same time the Board realise that in the planning of open-air schools there is still considerable scope for thoughtful experiment, and they will be prepared to consider sympathetically schemes, especially in the case of sanatoria or open-air schools, which may not in all respects comply with the rules. Provided the rooms used by the children are of a genuinely open-air type, that the equipment is adequate, and that proper arrangements can be made for feeding the children and keeping them and their teachers warm and dry, the Board will raise no objection to the use or erection of cheap temporary buildings. In any case, it appears desirable that during the experimental stage of a new type of school the premises should be simple and the construction inexpensive.

The extensive and varied collection of Japanese works of art formed by the late Mr. William C. Alexander, F.S.A., of Aubrey House, Campden Hill, has been presented to the Victoria and Albert Museum by three of his daughters, and a selection from the gift is now on view in Room 44, on the ground floor.

Mr. Alexander was one of the earliest English collectors to realise the charm of Japanese art.

The gift to the Victoria and Albert Museum covers practically every phase of Japanese art. The lacquer series, numbering about 400 pieces, is exceedingly wide in range, and most of the smaller objects to which the lacquerer's craft was applied are well represented, and by specimens of high quality. The group of sword-furniture similarly ranges over nearly all the known styles and techniques, and includes a number of examples which are especially welcome to the national collections. They range in date from the seventeenth century to the middle of the nineteenth century, and are for the most part made of alloys of copper, no two being exactly alike in the matter of decoration. Among the more striking curiosities in other directions is a very rare specimen of a Japanese iron horse muzzle, and yet another is a priest's "blind" sword made from a lotos root.

The absorption of "a considerable part" of the buildings of the Victoria and Albert Museum as offices for the Board of Education is to our mind a sad error of judgment, apart from the detriment to education resulting from a clearly evident cynicism on the part of the Government of the national value of museums, whether of art or other branches of knowledge. Obviously expensive and costly alteration or fittings must be applied to the museum to turn it into offices. Secondly, there are many buildings erected purposely as offices, and awaiting tenants, as, for example, in Kingsway, which might easily have been commandeered. Thirdly, it must have been apparent to the Government long ago, if they cared to exercise ordinary foresight, that extensive office accommodation would be necessary for war staffs, and better judgment would have been displayed in permitting the erection of suitable buildings rather than by the persistent spirit of antagonism to the building industry which has been displayed throughout the war.

At a recent meeting of the Society of Antiquaries of Scotland Sir Herbert E. Maxwell, Bart., F.S.A.Scot., gave an account of the rediscovery of the third of the inscribed monuments at Kirkmadrine, bearing the Chi Rho monogram, the existence of which had been known to antiquaries since about 1870 from a sketch which the late Sir Arthur Mitchell obtained shortly before that date from Mr. William Tod, an old schoolmaster in the parish of Kirkmaiden. This sketch had been made by Mr. Tod about fifty years previously. The stone, which had completely vanished, and was believed to be irretrievably lost, was recently discovered built into the centre of a gate pillar at the United Free Church manse of Stoneykirk, and supporting one of the crooks of the gate. It is of greywacke, and bears in Anglo-Roman capitals the inscription, "Initium et Finis," and, within a circle, the monogram originally displayed on the labarum or standard of the Emperor Constantine. This is the fourth stone bearing this device existing in Scotland; all of them in the county of Wigtown. The Chi Rho monogram first appears in the catacombs of Rome in connection with inscriptions executed early in the fourth century, while in France it occurs only on monuments dated between A.D. 377 and 540. It was suggested that the progress westward of Christian symbolism might have been accelerated by the mission of Bishop Ninian, and that these stones might be of as early a date as the end of the fourth or the beginning of the fifth century. The origin of the name "Kirkmadrine" was considered, and it was suggested that this had been a dedication to Bishop Martin of Tours—Martin in Gaelic being written "Matrinn." A church dedicated to Martin would have consequently received the name "Kilmatrinn," or, according to Gallovidian usage, "Kirkmatrinn."

ILLUSTRATIONS.

HINDHEAD COURT, HASLEMERE.

WE continue this week our series of illustrations of this house, designed by Mr. John H. Howard, which commenced in our last issue.

ARCH OF TITUS, ROME.

WE now present our latest reproduction of Plate II. in Taylor & Cresy's "Rome." Plate I. appeared in our number of last week.

THE SURVEYORS' INSTITUTION.

THE annual meeting of the Surveyors' Institution was held at Great George Street, Westminster, on Monday evening, the retiring president (Mr. G. F. Stewart, of Dublin) being in the chair. There was a large and influential assembly.

Mr. Percivall Currey (honorary secretary) read the annual report of the Council, which stated that the Quantity Surveyors' Committee had been actively engaged in pressing upon the Government departments concerned the desirability, in the cause of national economy, of quantities being provided in respect of the permanent and semi-permanent buildings erected in such large numbers for purposes connected with the war; and the impropriety of their taking advantage of the lack of work arising from the prohibition on building to obtain the services of surveyors at rates of remuneration which before the war would have been looked upon as inadequate. Before the war the question of the rank given to officers of the Royal Engineer Services, which was merely honorary and not substantive, was the subject of communications between the Council and the War Office authorities. With the mobilisation of this branch of the Army on the outbreak of war, and its subsequent augmentation by the appointment of a large number of architects and surveyors as inspectors of works, the question became more acute, and had been the subject of strong representations made jointly by the Royal Institute of British Architects and the Institution. It was to be regretted that up to the present the justice of placing

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these services in a position similar to that occupied by other non-combatant branches of the Army had not been recognised.

In the course of discussion on the report, Mr. William Woodward, F.R.I.B.A., made sympathetic allusion to the recent death of Mr. Julian C. Rogers, who for many years was secretary of the Institution. Twenty-five or thirty years ago Mr. Rogers, through his desire to do all he could for the benefit of London, led him (Mr. Woodward) to read a paper at the Institution on "Improvements in London," many of which had since been carried out. (Hear, hear.) He went on to express regret at the absence of Mr. Chatfeild Clarke, and trusted he was on the road to an improvement in health. Mr. Chatfeild Clarke had been—and he hoped would continue to be—a very useful member of the Council. (Applause.) There was a matter which he should like to refer to which he considered of the utmost importance. A few months ago there was a meeting at Oxford—he called it "the Oxford movement"—at which a programme was laid down and considered for the rehousing of many thousands of working classes throughout the country. Every member of the Institution knew that the housing of the working classes was a question that must be tackled, but in his opinion it should be tackled in a way which should previously receive the most careful attention in detail of the Surveyors' Institution and of the Royal Institute of British Architects. The pith of the programme advanced at Oxford was that the whole of the work practically should be done by the State. Private enterprise was knocked on the head, and building materials were to be supplied at a price which the Government fixed. The sum of threepence per house was to be awarded to every individual who reported that houses were unfit for habitation under the provisions of the Town Planning Act. From what he knew already of the administration of the Town Planning Act he could quite conceive there would be many hundreds, and perhaps thousands, of houses at threepence per house, which would be declared by individuals wandering about various towns of England as being unfit for human habitation. After the Oxford meeting, which evidently was the result of great preparation and of a character which he did not hesitate to call the most Socialistic, he trusted that before such a measure was brought before Parliament the subject would receive consideration by means of a paper at the Institution at the hands of men who knew.

The report was adopted.

It was announced by the retiring president that 2,240 members of the Institution had joined His Majesty's Forces, and that 152 had made the supreme sacrifice.

Mr. A. Lyon Ryde, of London, who succeeds Mr. Stewart in the presidency, was duly installed in office by the retiring president, who, with other officers, was most cordially thanked for able services in the past year.

THE forty-ninth annual report of the Council, the third issued during the period of war, is necessarily largely coloured by the life and death struggle on which the energies of the nation are still concentrated.

The war continues to exercise a marked effect on the membership of the Institution. Since last year the number of those connected with the Institution who have lost their lives on active service has been considerably increased, and in addition to this the demand made by the nation on the youth of the country has for the time being cut off the supply of those who would in normal times have presented themselves for examination and come up for election.

It is worthy of note that for the third time the highest civic honour the country has to offer has been conferred upon a member of the Institution; in November last Colonel Sir William Dunn, Fellow, was elected Lord Mayor of London, former members holding that office having been Sir John Whittaker Ellis, Bart., and Sir David Burnett, Bart. The Council feel sure that members will appreciate the honour done to their profession, and wish Sir William health to carry through the arduous duties which will fall upon him in his year of office.

The effect of the war on the finances of the Institution naturally continues. The capital investments have been depreciated to the amount of £2,377, while the income from subscriptions in 1916 showed a further decline of £1,526, due mainly to the largely increased number of members serving, who are relieved from the payment of their subscriptions until their return to civil life. Careful administration and economies effected in various directions have, however, enabled the year to be completed without the necessity of any call upon capital being made, and the Council are glad again to be able to congratulate members on the manner in which the Institution's resources have stood the strain of the war.

The military requirements of the country occasioned by the third year of the war were accurately reflected in the number of candidates presenting themselves for examination. If the ten candidates who came up for re-examination in their typical subject are left out of the reckoning, it is necessary to go back to 1887, only seven years after the examination system was adopted, to find a smaller total, the number for the year under review, sixty-three, being only one-twentieth of those who sat in the high-water mark year, 1913, when the total reached 1,266.

The reduction in the number of ordinary general meetings, inaugurated last Session in order to meet war conditions, has been continued, only six meetings being held. The first was, as usual, given up to the President's Opening Address, but the following Papers were read at subsequent meetings: "Suggestions for the Improvement of Cattle Breeding in Great Britain," by Professor K. J. J. Mackenzie, Associate; "The Repopulation of our Rural Districts," by Mr. Theodore G. Chambers, Fellow; "Some Notes on the Defence of the Realm (Acquisition of Land) Act, 1916," by Mr. Edwin Savill, Fellow; and "The Effect of War Conditions upon the Property Market (Urban)," by Mr. J. George Head, Fellow. The discussion on Mr. Savill's Paper was carried over to a second meeting, when the subject was reopened in an able and interesting speech by our honorary member, the Right Hon. Lord Parmoor of Frieth, K.C.V.O., &c.

In addition to the "Transactions" two important Reports on Unemployment after the War in Rural and Urban Districts were issued. The Council are pleased to be able to report that these publications aroused a wide interest, as evinced by the great demand for them outside professional circles. They wish to express their thanks to the members of the Committee responsible for conducting the inquiry, who devoted an immense amount of time and attention to the subjects referred to them. The names of those who acted upon the Committee appeared in the published Reports.

During the year circulars giving information on the following subjects have also been issued: The Government Aircraft Insurance Scheme; the Employment of Clerks of Works for the Measurement of Variations for Settlement of Acounts under Contracts; Relief in respect of Income Tax when the income has suffered owing to the War; Surveyors' Fees in case of Taxation of Costs; the Agricultural Output; Sole or Solé Remaining Principals in Surveying Firms called up for Military Service; the Registration of Business Names Act, 1916; and National Service.

Beyond the purchase of new editions of standard works, expenditure on the library has been governed by the same considerations of economy which have prevailed in the administration of other departments of the Institution's affairs. In one direction only has there been any marked extension of the library. It was thought desirable, in view of the new Mining Sub-Division, that steps should be taken to make the shelves of the Institution as representative of that branch of the profession as it already was in other directions; certain works and official reports have therefore been purchased.

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while others have been presented through the generosity of mining members, including a notable gift, from the partners in the firm of Messrs. Lewis & Lewis, of Derby, of an entire set of the "Transactions" of the Institution of Mining Engineers. A list of these presentations has already appeared in the Notices to Members, and the Institution is greatly indebted to those who have taken so large a share in bringing the library up to date in this direction.

Developments contemplated in the Forestry Museum have naturally been affected by the war, but considerable progress has been made in several directions. The re-labelling of the timbers with a full detailed description of the character of the tree and its timber has progressed, and several new exhibits of an interesting nature have been added to the collection. The exhibits illustrating the timbers required in the war, which were arranged by the Director of Army Contracts and other Government Departments, have now been obtained on permanent loan, and should add considerably to the interest in the museum.

Another exhibit of timbers from the museum was arranged and created considerable interest at a large meeting held at the Institution on Monday, March 12, to which all those interested in woods were invited. This meeting was attended by many influential people, including the Director of Timber Supplies (Sir Bampfylde Fuller) and the Director of the Agricultural Section of National Service (Mr. J. Harling Turner, F.S.I.). Several members of the House of Lords and the House of Commons, in addition to landowners and agents, were also present.

Afforestation is likely to be a very prominent subject after the war, and a real effort will be made to make this exhibit the recognised forestry collection of English timbers in London. The Council hope that all members will do everything possible to attain this object, and will show a practical interest in the museum by supplying information or submitting specimens likely to prove of value as permanent or temporary exhibits.

An important new departure has been made in the establishment by the Council of a Board of Inquiry for the purpose of inquiring into applications by surveyors for exemption from military service under Section 2 (1) (*b*) of the Military Service Act, 1916. This Board was originally set up with the object of investigating and reporting upon applications from members of the Institution who were the sole, or the sole remaining, principals in established businesses; but the military tribunals in the London area quickly recognised the advantages to be gained by means of a judicial inquiry into these cases carried out by a professional body capable of understanding the points upon which applicants based their claims for exemption, and large numbers of cases have been referred to the Board outside the original scope of the undertaking. The Board, of course, have no power to grant exemptions, and can only act in an advisory capacity, but the number of cases which have been referred to them affords proof, if proof were needed, that the departure was well advised and met a decided need.

Arrangements were also made, with the co-operation of the Provincial Committees, for similar Boards to be established throughout the country, and although the services of these have not been so fully made use of by the tribunals, they have done useful work.

The Council recognised that many cases of hardship must inevitably occur as the national demands under the Military Service Act became more exacting, and the following extract from their circular of December last indicates the steps they proposed to take for the assistance of members in carrying on their businesses during their absence on naval or military service:—

"1. In the event of application for exemption proving unsuccessful, the members called up for service should if possible, arrange with other firms to carry on their business. The Council believe that the sympathy naturally felt towards these members in their difficult situation will facilitate such arrangements, and wherever practicable such a course is strongly advised.

"2. The Council will set up a Court to deal with all questions arising in connection with the maintenance of the businesses of members called to the Colours.

"3. Where it has not been found possible to make arrangements with another surveyor to take over the practice, they will endeavour, with the assistance of the Provincial Committee when necessary, to introduce a suitable collaborator. But in so doing they will not be able to accept any responsibility as to the manner in which the business is conducted, except so far as is indicated in the following paragraphs.

"4. The Court, both when the arrangements are privately made, and when a collaborator is introduced, will be prepared: (*a*) To advise generally as to the terms which might be fair between the parties; (*b*) to advise in matters of difficulty which may arise during the absence of the principal; (*c*) to adjudicate upon any differences which may arise between the two parties to the arrangement, provided that an undertaking to submit such differences to the Court is entered into by the parties beforehand.

"5. Members who would be prepared to help those called up for service by carrying on their practices in their absence are asked to inform the Secretary, 12 Great George Street, S.W., in order that a list of those available may be drawn up."

A Committee representing the Mining Sub-Division has been set up, Sir Francis Brain being its first elected chairman. Although its activities have been necessarily limited by the war, it has done useful work in recommending candidates for election with the object of strengthening this branch of the Institution; in advising on the syllabus of the Mining Examination; on the additions to the library needed to make it representative of the mining side of the profession; and in making arrangements for bringing up to date the information on mining royalties collected by the Royal Commission. This latter work is now in process of being carried out.

(*To be concluded.*)

COAL CONCRETED FROM ASHES OR DUSTS.*

By R. GOULBURN LOVELL, A.R.I.B.A., M.S.A.

WHEN in France, last year, lecturing to the troops, I found the dearth of fuel so pronounced that, at one of the largest training camps, there was a constant peril of the supplies entirely failing. The suffering was most acute last winter. As you are aware, our frugal neighbours utilise their coal dust by compressing it into briquets. The plant is costly, considerable pressure is required, and, although the resultant fuel incandesces fairly well it does not flare up nor does it coke.

At the beginning of the year, during the very hard weather, the lack of supplies from England made it necessary to use up the coke dust, slack or debris of any calorific value. One's efforts were directed to finding some matrix that might bind the dust and ashes to form a fuel quickly. A fuel that would not disintegrate in the fire or during transportation.

It can be assumed that the supply of fuel to-day is as important as the supply of bread. Yet millions of gallons of petrol and tons of valuable chemicals are wasted every year under our present system. One of the most important questions in national reconstruction will be a better and saner use of fuel. The subject is now being investigated and remarkable developments may be expected in the direction of the utilisation of power and heating and the utilisation of by-products.

In co-operation with my friend Mr. C. M. Hughes,

* A Paper read before the Society of Architects, on June 7.

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we have evolved a process which will enable a fuel to be made without pressure at any industrial locality from the waste products to be found in that locality which may possess any calorific value. The process is a humble but very important part of a great scheme for the proper utilisation of fuel. It provides for immediate necessities and utilises a residual product now of comparatively small value.

I have prepared a rough chart showing "The Age of Coals." Previous to the forty million years which are there shown our old world had been spinning round in space, slowly solidifying, acquiring its rocky crust, its ocean and its atmosphere. This process had possibly been going on at least since seventy million years ago.

Thirty million years ago during the Silurian Epoch, graphite, the first of the coal family, was forming. The first fishes can also be traced in this epoch.

During the next epoch the Devonian sea serpents were developed from fishes. To this epoch belong the seams of coal on Bear Island. They are the oldest known humic coals in the world—about twenty-four million years old.

The Carboniferous Epoch lasted from about twenty-four million to eighteen million years ago. That is, for during six million years the greatest and finest coal measures of the world were being formed. Certainly in England and Wales our coals are practically all of the earlier Carboniferous Epoch. In the United States all the most important coals are of the same epoch, but on the Continent and in the Southern Hemisphere generally the coal measures are of the later Carboniferous Epoch and also of the Permian Epoch, which lasted up to about fifteen million years ago.

During the Secondary Geological Age the crocodiles and first land creatures developed into mammals and flying dragons into birds. Tropical flora was everywhere. Coals of these epochs (about twelve million years back) are found in China and Japan. There are also some examples in Britain, in Hungary and in Russia. During the Cretaceous Epoch good brown coals and lignites were developed in the Rocky Mountains, Alaska, Japan and elsewhere (between six and three million years ago).

The Tertiary Age lasted about two and a half million years, during which the bat, crocodile, hippopotamus, horse and the ape have appeared and developed. Modern trees and flora appeared. Brown coals and lignites occur in the deposits of this age in Germany, Hungary, Russia, Japan, Australia, New Zealand and elsewhere.

The present age began about half a million years ago. First came a period of several advancing and retiring glacial movements over the Northern Hemisphere, and during the last hundred thousand years the Cave-man, with his flint hatchet, has advanced to what he is to-day, with his scientifically murderous methods of warfare. Of this age peat is the only form of coal formations.

The word coal or coke until recently meant fuel, but to-day it means any of these carbonaceous rock formations which may be used as fuel—such as lignites, brown coals, sapropelic, humic and anthracite coals. Outside of this list, at one end, is peat and at the other graphite; both of these belong to the coal family. The ages of all are shown on the chart.

The various varieties appear to pass from one to another. We all know the vast difference in the ordinary house coal; they are classed under the general title of Humic or Bituminous; some of them have similar qualities to the brown, others to the sapropelic or to the anthracite coals.

It is not the age alone which determines these various characteristics. The idea is now discredited that peat, during the ages, has passed through the various grades of coal until it became anthracite. By a careful study of the associated rocks and the coal measures themselves, various theories have been advanced as to the original substances and the methods by which the various coals have been formed.

During the seventy odd million years required to mould the globe from a molten mass to its present, the great volcanic upheavals produced repeated contortions of the earth's surface. These violent contortions and the glacial movements of the Northern Hemisphere account for constantly recurring physical actions of varying forms.

Therefore, it is urged that by a combination of these various operations, during millions of years, the innumerable varieties of coal throughout the world have been produced. The deposits or aggregates vary, the matrices vary, and the methods of production vary. Consequently it may be said there is no standard coal. If this has been made clear, the difficulties of making an exposition of our artificial coal will at once disappear.

The main problem before us is:—

(*a*) The utilisation of the waste products of any calorific value.

(*b*) The production by unskilled labour and existing machinery.

(*c*) The saving of transport.

If a method of production could be found by which an aggregate of breeze could be concreted by such matrices as lime, pitch or glucose, the main problem would be nearly solved.

Every architect or engineer will recognise the possibility of concreting by the addition of lime, chalk, or other calcium carbonate. They will also recognise the need of carefully apportioning the various aggregates to avoid too dense a substance on the one hand, or too open and friable a substance on the other.

In producing a satisfactory fuel, the main objects aimed at would be non-friability, good flare, non-caking, good coking, good incandescence and non-clinkering, otherwise a free combustion with good calorific value at a low price.

When one considers Nature's varying methods of producing coal, it will not be difficult to understand that man must not expect to produce it on any one uniform plan. The characteristics of the varying aggregates and of the varying matrices require that the waste products of each locality should be carefully studied before determining upon the most satisfactory method.

Further, the use to which the fuel has to be put must be considered; that is, if it be required for open grates or closed stoves, or if a high calorific value or a bright burning coal be the chief desideratum. It has been ascertained, however, that from these varying conditions certain relative proportions can be determined of a more or less uniform character, and this has been systematically done.

A coal is here shown which has been concreted from coal dust alone, another from coke dust alone, another from destructor ash alone, another from destructor ash and coal dust, and another from clinker, bar ash and sawdust. It will be seen in the fire that the better grades burn like Nature's coal, the lower grades like coke; they all flare, coke and incandesce. Further, these artificial coals will be found to be more lasting; in the same way as a good artificial stone is more lasting than most stones made by Nature.

The machinery and plant required practically exists in all industrial centres. The essentials are crushers or breakers, screens, drying tables, mixers and moulds such as cast away pails, baths, &c. For the cooking process either ovens or boilers can be used, the main object at the present time being to utilise any existing plant with unskilled labour.

The cost depends mainly upon the value put upon the bases, the cost of the matrices, such as glucose, pitch and other bitumens, and the cost of the chalk or other calcium carbonates. For instance, the destructor ash and clinker at Eastbourne is valued at 6*d*. a ton, whereas at Birmingham an allowance is made of 2*s*. 6*d*. a ton. The coke breeze in London is valued at 6*s*. a ton, and in Birmingham at 1*s*. The price of hard pitch is quoted 38*s*. a ton at Eastbourne, 22*s*. at London, and 18*s*. at Birmingham. On the other hand, the price of chalk is 3*s*. 6*d*. a ton at Eastbourne, 6*s*. at London, and 16*s*. at Birmingham.

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Speaking generally, the cost of the materials of these seven typical examples would be, roughly:—

Calorific Values B.T.U.s'.	Samples	Per Ton
7,500.	No. 1, Eastbourne destructor ash	11.0
8,040.	No. 2, Maples destructor and coal dust ...	4.6
10,320.	No. 3, Maples destructor and sawdust ...	9 0
10,540.	No. 4, Birmingham destructor and coal dust	8 0
11,840.	No. 5, Birmingham coke dust	7.0
12,600.	No. 6, London coke dust	10.0
12,820.	No. 7, Staffordshire coal dust	10.1

The cost of the labour and establishment charges in the British Isles would not be more than 5s. a ton.

The calorific value of each sample is shown in the left column.

This schedule makes the following facts evident:—

1. That the millions of tons of coal-slack can be concreted, without pressure, into an excellent coal.

2. That all the powderous brown coals can also be concreted into a good transportable coal.

3. That all the coke dust, accumulating in the gas works, can be similarly utilised.

4. That an excellent fuel can be produced from sawdust in all the timber countries of the world.

5. That ashes from the household and the municipal destructor can be made into cheap flaring coke.

6. That all industrial concerns consuming more than ten tons of coal a day can reduce their bill by at least one-third, and also use their accumulating waste products.

7. That this work can be done by existing machinery and unskilled labour.

I therefore invite your consideration as to whether our main problem is not solved. I submit that these various aggregates or debris can be concreted into fuel by man in twenty minutes, or if you like in twenty days; while Nature's better but longer process has required twenty million years.

When it is remembered that over fifty million tons of coal were exported last year from the British Isles, the national and international importance of this process of making a good fuel will be at once seen.

This question should be taken in hand at once, so that we and our Allies may be ready with next winter's fuel supply.

Upon the receipt of samples of any waste products of calorific value from any centre, tests can be made to determine the most satisfactory formula, and a licence to manufacture can be granted with one dominant restriction, namely, that the fuel should be supplied to the consumer at a profit of not more than 25 per cent.

THE TOWN PLANNING INSTITUTE.

THE annual general meeting of the Town Planning Institute was held on Friday last at the Surveyors' Institution under the chairmanship of the President, Mr. J. W. Cockrill.

The auditors' report and balance sheet was adopted, and the following council elected:—Messrs. S. D. Adshead, P. B. Houfton, H. V. Lanchester, A. S. Soutar, P. T. Runton, and R. Unwin (architects); J. A. Brodie, J. W. Cockrill, W. T. Lancashire, H. E. Stilgoe, J. A. Webb, and E. Willis (engineers); T. Adams, W. R. Davidge, T. H. Mawson, G. L. Pepler, and G. N. Dixon (surveyors); E. R. Abbott, C. Hubbard, and R. A. Reay-Nadin (legal members); C. P. Lovelock (legal associate member); W. R. Jeffreys (hon. member); Sir R. A. Paget, Bart. (associate member); and P. Abercrombie (ex-officio member).

THE PRESIDENT'S ADDRESS.

The President:—It is my duty at the finish of my year's work to give a short account of the work of the Institute during the year. An orator at a public meeting near the end of the year put the question to his audience, "And what is a year?" This he answered by informing them that it was but twelve miserable months. The third year of the Institute's life has been one of stress and strain to all its members, but not one of them have publicly complained that it had been twelve miserable months. Throughout the year members and Council have shown their desire to forward the interests of the Institution in a way that augurs well for its future. Before our new President's term of office expires we one and all hope that the war may have come to an end, and that to some extent the work on which we were engaged when it broke out may be resumed. The papers, all of which have been prepared by members or Associates of the Institution, would have done credit to any society.

Unfortunately our first President has been unable to be with us, and the reading of his papers on the Canadian Act was postponed. We all hope before the year now commencing has run its course, that we shall have the pleasure of seeing him and hearing an account of how he has succeeded in Canada. Mr. Alwyn Lloyd led off the session with his paper on Town Planning in Wales, from which we obtained glimpses of the way in which the workers of the Principality have been housed, and what may be expected from the new conditions likely to arise under the Act, and the more enlightened policy now being pursued. Mr. Councillor Harrison Barrow's paper dealing with Housing and Town Planning requirements at the end of the war was a contribution of a most helpful character. It shows in a very marked manner how dependent success in all this work is upon the public spirit and clearness of sight of the members of town councils throughout the country. With its Chamberlains, Cadburys, and Harrison Barrows, Birmingham may be expected to set a good example to the whole country. Professor Abercombie and Mr. Sydney A. Kelly described their work which was successful in the Dublin competition. Nothing but praise could be given to the authors of this work, which Mr. H. V. Lanchester described as having set a standard with regard to a comprehensive town plan which had not hitherto been reached in this country. It is to be hoped that Ireland may meet with the prosperity which will ensure the carrying forward and completion of the scheme to a successful issue in the near future. May other cities of the Empire follow the example of Dublin so that as opportunities occur overcrowded areas shall be cleared, and the workers of the country placed in open, clearer spots for both work and residence. Professor Adshead's paper on Monumental Memorials and Town Planning comes at a time when the matter is likely to be brought to the front, as there is not a city or town in the country but will want to erect one or more memorials in commemoration of the events of the past three years, and the importance of some authoritative work on the subject is evident.

Mr. H. V. Lanchester's well-illustrated paper on "Town-planning Works in Southern India," with its numerous illustrations, was very instructive as giving conditions of life in Eastern lands in a climate entirely differing from that to which we are accustomed, and then dealing with new conditions and improvements which would provide the people with better homes than those in general. Mr. Rees Jeffreys' paper completes the work of the session by a most important contribution, which must have entailed an enormous amount of work dealing with the subject of road construction and improvement by means of town-planning schemes, on which he was more capable of speaking than anyone else. He claimed it to be "an examination revealing deficiencies in the machinery of local government which delay and render difficult the solution of the twin problems of housing and road transport," and a consideration of some modest remedies.

The second evening's discussion at the time of writing had not been held, but it may be expected that if the second evening closes the debate upon the paper it will not then be done with. Some of the proposals must have further consideration, perhaps at other places than an

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Institute meeting, and if acted upon may do something to stir up authorities who are lagging behind in this matter. The Council of the Institute during the year has been by no means idle; among its labours was the framing of a provisional scale of professional charges and regulations for the conduct of town-planning competitions. The examination syllabus drawn up for use after the war gives a most comprehensive statement of the work necessary in preparation for the important duties ahead of a would-be practitioner. A memorandum with regard to town planning after the war has been drawn up and presented to the President of the Local Government Board. The Committee of the University College of South Wales and Monmouthshire, which has been set up to consider the creation of a School of Architecture and Town Planning, asked your Council to appoint a representative on their committee, with the result that the Council recommended Mr. Alwyn Lloyd. Early in the Council's year of office there were fears that the decision of making awards in the City of Dublin town planning would be unduly postponed, and representations were made to the committee controlling the work with reference to the importance of coming to a decision; their award has been made, with the satisfactory result known to you all. The Institution is still growing in numbers, twenty-one members having been added in the year, an increase of upwards of 12 per cent. Finances are also improving, and £100 has been invested in the War Loan. Additions have been made to the library; several authors have presented their works, and we hope that this practice will continue. Advance in town planning has been made during the year, so that there are now six schemes which have been finally approved by the Local Government Board, and four other schemes prepared, one of which is an amending scheme, making ten schemes prepared by eight local authorities. We may hope that this pace will be somewhat accelerated in the near future. Other societies and institutions continue to give this Institution assistance, and we have to thank the Surveyors' Institution and the Institution of Municipal and County Engineers for the use of their rooms for meetings. The former houses our growing library, where it may be consulted by members; this fact should be known to all. The war stops progress still, but we hope that its blighting influence will soon have passed and that the help which the United States will give in the matter will be as real as their help in town planning. The preamble to the Bill for the Charing Cross Bridge strengthening has been proved, but with no compensation liable for work done under the Bill for which I suppose the London ratepayers must be thankful. For the consideration of the Council and Institution generally in a very difficult year I am deeply grateful, and I venture to hope that the year has not been entirely barren in results which will leave their mark in the history of the Institution.

A hearty vote of thanks to the President, on the motion of Professor Adshead, concluded the proceedings.

AT a meeting of the Town Planning Institute, held at the Surveyors' Institution, Westminster, on Friday, June 1, discussion was resumed on the subject of "Road Construction and Improvement by means of Town-Planning Schemes," upon which Mr. W. Rees Jeffreys, Secretary of the Road Board, recently read a paper. The President (Mr. J. W. Cockrill, M.I.C.E.) was in the chair.

Mr. H. E. Stilgoe (City Engineer of Birmingham), in opening the adjourned discussion, observed that he had read Mr. Rees Jeffreys' paper with great interest, and to those of them who had prepared town-planning schemes, or who had studied the procedure under the Housing and Town-Planning Act, 1909, the paper was particularly valuable. It dealt primarily with the subject of the laying-out and construction of arterial roads under the Town-Planning Act, and, in parentheses, it touched upon building development and better housing, which were linked up with a proper scheme of arterial roads. Mr. Jeffreys, of course, referred primarily to the Town-Planning Act as his instrument for this work, but in the most thorough way he had analysed the other various methods of procedure such as private bill legislation. His own opinion was that arterial roads could be constructed under the Town-Planning Act, and that it was in the best interests of the country that local authorities should be required to make town-planning schemes for their respective areas, not necessarily complete schemes, because the preparation of complete schemes would occupy too much time and thereby cause delay. What was urgently required was that steps should be taken in the planning to prevent great arterial, secondary and main roads being built up to in such a manner as to obstruct their widening and improvement without incurring the cost of demolishing new buildings. In this connection the building lines in such streets should be defined, and in order to prevent unnecessary crowding the limitation of building densities should be laid down. If they took those three main points they would be enabled to prepare preliminary town-planning schemes which included practically all that was necessary to safeguard what one might refer to as the backbones of the scheme, and to prevent undue building, that was to say undue crowding. Preliminary town-planning schemes including those items could be prepared in much less time than was now spent on the preparation of complete schemes, which, as they knew, must include open spaces, allotments, and a hundred and one things met with in actual work. The inelasticity of practically all by-laws relating to the laying-out of estate streets inflicted on the owner of the property the necessity of constructing to a given width the carriageways, footways, &c. Moreover, having regard to the fact that the local authority had not control of the site for the planning of the direction of the street, a universal specification of street construction had to be applied, no matter whether the street had to carry heavy or light traffic. It was these hard-and-fast by-laws that had a bad effect upon street planning. They, of course, who had to administer those by-laws were perfectly well aware that they could not be inelastic where penalties were imposed. That must necessarily be so, but if the great traffic routes of a district were planned and laid down upon the town plan one was able to allocate a site for the estate streets in such a manner that they would not carry the main through traffic. Of course, they carried the through estate traffic, but that was a small matter, and they could be constructed accordingly. One did not want to have huge kerbing channels, great thicknesses of macadam, and so forth, in an estate street that was only going to carry the butcher's and baker's cart, but where they were bound by a hard and-fast by-law, and had no control over the direction of streets, and had to plan and make them so that they might carry the traction-engine or any other thing, they were bound to make them strong enough, otherwise they would find that the estate streets which were not properly planned, and which they had no power to plan, would be carrying this traffic, and therefore they must protest against their construction. It was the planning of the site that was the all-important thing: that, of course, they would thoroughly appreciate. Up to the present time only five schemes had been approved, although some few others were in course of preparation. Why was it that local authorities had not been more active in this work? Was it lack of initiative or was the work considered to be too heavy for the staff of some of the Councils? Probably it was the latter. That would point to a misconception of how much could be or how little need be included in the scheme. He really believed that people had an idea that if they embarked upon the preparation of a town-planning scheme it must include everything that could possibly be conceived, and it would be a very good thing if some of those gentlemen who were doing good propaganda work about the country in the matter of town

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planning would try and impress upon their audiences occasionally that fact. It would help, he thought, because he believed that in many of the rural districts there was a good deal of misconception upon what was necessary. Or it might be that the local authorities had fought shy of incurring such liabilities as might attach to the responsible authority. Now there was a good deal in that. He knew of local authorities who had said "Yes, but there is a big financial responsibility." Then, again, a great deal depended on how much they put into their scheme. If they would insist on laying out every street they could possibly think of within their area, there might be very considerable responsibility. On the other hand, if they claimed betterment the boot would be on the other leg, but the vital point was to go in for the simple scheme which, in the first instance, was so vital to the subject of great arterial roads. If they could be persuaded to prepare these preliminary schemes which included, first, the great arterial roads and the other two points he had mentioned, it was at any rate sufficient to go on to secure the object Mr. Rees Jeffreys had in mind. As to compulsory town planning he (Mr. Stilgoe) wondered if the Local Government Board was satisfied under Section 61 of the Housing and Town-Planning Act, 1909, that there had been sufficient activity. He did not know whether representations had been made to the Board as indicated in the section of the want of proper town-planning schemes. Probably not, and so far as he read the section it did not appear as though the Board could act unless representation were made, and there was all the greater reason for legislative power to compel town planning. Would the Board take steps to enforce the preparation, say, of preliminary schemes? At the present time that point was being strongly urged upon the Board by the Town-Planning Institute and others. Mr. Rees Jeffreys referred to the very important question as to who should prepare these town-planning schemes. He (Mr. Stilgoe) certainly considered that in the rural areas the County Councils were pre-eminently qualified to deal with great through roads. A Town-Planning Commission was suggested in the paper. He had no doubt that some such authority would be necessary to co-ordinate the various schemes, particularly the junctions on the fringes of the various areas planned. They all knew in embarking upon the preparation of a scheme how necessary it was to go right away from that small area which they might consider it so necessary to plan. They wanted to take a comprehensive and large map of the surrounding country, and not begin in their planning with the selection of minor details, but to strike out with a bold hand the great lines of communication, and see where they passed through or where they ought to pass through the district they were planning. It was pretty evident that a small rural district could not be expected to prepare a scheme unless they had the advice perhaps of the trained gentlemen Mr. Rees Jeffreys spoke of as being employed by the Commission who could advise as to the preparation of such a scheme. As to the cost of arterial roads for through traffic—he meant the secondary arterial roads which took mostly the local traffic—he was of opinion that portions should be borne by the State, the county authority, the local authority, and the landowners benefiting thereby. After dealing with other points, Mr. Stilgoe referred in conclusion to the simplification of procedure which was dealt with by Mr. Rees Jeffreys. There was no doubt, he said, that simplification was required, and that could only be brought about by fresh legislation.

Mr. Joshua Schofield said that from one point of view he thought it was rather a pity that the paper had come up for discussion at the present time, when everybody was so absorbed in their consideration of matters connected with the war, inasmuch as it might not receive the attention it merited. But from another point of view it was a matter for congratulation that the subject had come up now—he meant it was the duty, of course, of all good citizens, while doing their utmost for the proper furtherance and success of the war, to make every preparation for the hereafter when the war was at an end, especially in a matter of such great importance to the community as the provision of arterial roads. Touching the instance given by Mr. Rees Jeffreys of an arterial road running from Hastings to Eastbourne, Mr. Schofield was rather doubtful as to the soundness of the conclusion that the Town-Planning Act would be available for the construction of a road like that. He was troubled to think he was in disagreement with Mr. Jeffreys, and he (Mr. Schofield) thought he must be wrong, but Section 54 of the Act provided as follows: "A town-planning scheme may be made in accordance with the provisions of this part of this Act as respects any land which is in course of development or appears likely to be used for building purposes with the general object of securing proper sanitary conditions, amenities, and conveniences in connection with the laying out and use of land, and of any neighbouring lands." That appeared to be the basis of a town-planning scheme. When they were thinking of a road from Hastings to Eastbourne, clearly a large part or some considerable part of the road could not be considered as a road within the meaning of this sub-section—it could not be a road in connection with the laying out and use of land which was in course of development or likely to be used for building purposes. It was something which was to come into existence not for the purpose of developing any building estate, but primarily as a means of getting from one large centre of population to another, and he thought if an attempt was made to construct a road of that nature under the Act any objecting person would succeed in getting an embargo placed upon the attempt for that reason.

Mr. Harold Shaweross (National Housing and Town-Planning Council) referred to the proposed new authority, and said in that matter they were all jibbing at the fence, and were not prepared to say what the authority should be. He had suggested County Road Boards. If they were going to do any kind of work under the Town-Planning Act they would require to have money spent not only on the upkeep of these roads, but on the preliminary work of getting a wider road than that of the by-law limit; and, if that was going to be done they were all agreed that it was absurd to expect a small local authority to contribute anything towards the extra cost of such a road. The local authority would not look at the idea for a moment, and it would not be advisable that they should be asked to do it. He suggested that the County Council should have power over the main and secondary roads, and that the provisions of the Act should be made obligatory. At the same time, if they could have all the grants they were hoping to get from national sources towards the upkeep of the roads, coupled with grants for town-planning purposes as well as for making wider roads, and so on, then he thought they had a way by which they could ensure this work being done, and the means of getting it done. The grants, which, he thought, ought to be on a liberal scale, could be administered by a central authority. He thought the amount we were getting now from users of vehicles was not enough; we could easily get more out of them. The tax on petrol might very well be doubled, or more than doubled. If people were wealthy enough to scour the country in motors of great size they were quite wealthy enough to pay for the upkeep of the roads. Then there were the motors which went about at slow speed. A very large sum might be obtained and devoted both towards the upkeep and the preliminary making of these roads. Speaking as a member of a local authority, he did not like the idea of a Town-Planning Commission. He did not think such a Commission would be received with favour by local authorities.

Mr. Montague Harris (Secretary of the County Councils Association) said it seemed there was almost universal agreement there that larger authorities were wanted. It was perfectly obvious that if a District Council proceeded to make a town-planning scheme, though it might be perfect from their own point of view, yet if looked at from the road point of view it would not

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necessarily be perfect from the point of view of the larger authority. It was refreshing to him to hear the friendly manner in which it was suggested that County Councils should have further town-planning powers. It was reasonable that if a District Council was to lay out a road the County Council should have something to say as to how it should be laid out. County Councils generally were better fitted to carry out town-planning schemes than others, but they would not all be desirous of carrying out the powers given to them, so they must get a power higher than the County Council. If they were looking merely at the question of roads the Road Board would obviously be the authority to deal with it, but the road question could not be separated from that of town planning. Therefore, they must look to a branch of the Local Government Board or some new authority that would undertake the whole question. What they wanted was some Government Department which should have the power to do what, he thought, local authorities generally were anxious they should do—namely, as expressed by the Royal Commission some years ago, apply the spur or the brake.

(To be concluded.)

NATIONAL HOUSING AND TOWN PLANNING COUNCIL'S DEPUTATION TO THE PRESIDENT OF THE LOCAL GOVERNMENT BOARD.

WE gave a brief note a few weeks back of this important deputation received by Lord Rhondda on May 7, and now are able to reproduce the full official report. Lord Rhondda was accompanied by the Right Hon. R. Munro, K.C., M.P. (Secretary for Scotland); the Right Hon. W. Hayes Fisher, M.P. (Parliamentary Secretary to the Local Government Board); Sir Horace Monro, K.C.B. (Secretary to the Local Government Board); Mr. Vaughan Nash, C.V.O., C.B. (Secretary, Reconstruction Committee); Mr. J. A. E. Dickinson, I.S.O. (Housing and Town Planning Comptroller, Local Government Board); Mr. G. C. Upcott (Reconstruction Committee); Mr. J. Walker Smith (Scottish Local Government Board); and Mr. F. L. Turner, C.B. (Private Secretary to the President of the Local Government Board).

In introducing the deputation, Councillor Harold Shawcross said:—

My Lord, in speaking upon the matters that have brought us here, it is not my intention to address you at length, but only to emphasise those proposals to which we attach the greatest importance. We are here to present to you the resolutions which have been passed at a series of conferences of local authorities held within the past six months. You have a copy of these, and a few words upon the resolutions will be sufficient.

The first resolution welcomes the pledges given by the late Government and the new Prime Minister, that means shall be taken to provide, on their return, work for the men who are fighting for us abroad and that unemployment shall then be avoided for members of the building trade by setting them to work building the houses so badly needed for the working classes.

The resolution urges local authorities to make inquiries as to the housing shortage in their areas, and, when there is a shortage, to select suitable land and secure options on same and plan out such land on garden city lines.

With reference to this resolution I may add that another resolution was passed unanimously at the last three conferences held, which is not amongst those which have been handed to you. It is as follows:—"That this Conference requests the National Housing and Town Planning Council to arrange for a deputation to wait upon the Local Government Board to urge that the board shall require all local authorities in whose areas there is a shortage of houses for the working classes, to at once take action on the lines suggested in the latter part of the preceding resolution, so that the building of working-class houses shall not be delayed at the close of the War by unpreparedness on their part."

Now, my Lord, we attach the very greatest importance to the request made in this resolution that your board should at once make the definite inquiries asked for from local authorities and really find out what number of houses are likely to be built at the close of the War and also should require local authorities to have everything ready for building when the War is over. We hope that any replies you get to such queries will be made public.

We, as a Council, have done what we could, and we think we have impressed a great many local authorities with the importance of this question. There is, however, every excuse for delay now on the part of local authorities as the energies of most of the leading men are so taken up with the carrying out of work in connection with the War. We are convinced that it will need strong action on your part to get this work carried out properly.

We next lay stress on the desirability of getting local authorities to secure land now and to find out by inquiries if suitable land will be available. Since the Finance Act was passed there has been a great disinclination on the part of landowners to offer their land and quote prices for it, and it is extremely important that you should know as soon as possible if there is likely to be difficulty in getting the land required so that steps can be taken without delay to get legislation passed to enable land to be secured, without excessive transfer costs, at reasonable prices. This difficulty has already been experienced in different areas, and a resolution passed at our Leeds Conference bears upon it. In this connection the legislation promised for the removal of the grievance connected with the Lumsden judgment may be emphasised.

The other resolutions passed at the conferences we have held relate to the subject of Town Planning.

The difficulties of the arterial road question are dealt with in the resolution in which conferences are asked for in populous districts to secure agreement on the best lines for arterial roads. To show how the question of Town Planning has advanced it is a noteworthy fact that at Birmingham a resolution was passed which, you will see, asks our Council to formulate proposals providing that local authorities should be required to make preliminary town-planning schemes to limit the densities on the unbuilt parts of their areas, to plan main traffic roads and to fix building lines on new and existing roads. We propose to do this, and will submit proposals to you later.

I wish also, my Lord, to refer to the memorandum we have placed before you as we deem it to be of special importance. We assume that the assistance the Government will give will be on the lines of the housing that has been done for munition workers and will take the form of grants-in-aid towards the cost of building. What we feel as to the amounts of those grants-in-aid is that it is impossible for the Government to state now what the proportion given towards the cost of building at the close of the War will be, but we would press upon the Government to state that these grants will be sufficient to bring the cost of the cottages down to the prices at which they could be built before the War. We think it should be possible for the Government to calculate at the close of the War what the cost will be then, when the rates of wages and the necessary extra cost of materials owing to the advances during the War are taken into consideration. We are not here to ask for exorbitant grants-in-aid, nor yet for too small ones, and we feel that the declaration as to the pre-War prices is the most satisfactory one for the Government to make. Local authorities will have to face the extra rate of interest which, as our memorandum shows, will add 2s. a week to the rent of the cottage as against pre-War prices. Owing to rents not having been advanced through the operations of the Increase of Rent and Mortgage Interest Act, this increase will be as much as local authorities will care to face. If the extra cost is too much people will not be got to take the new houses and will prefer to stop in their present overcrowded condition.

You will see in our memorandum certain proposals for getting the architects of the country to assist in making the best designs possible for the houses that are

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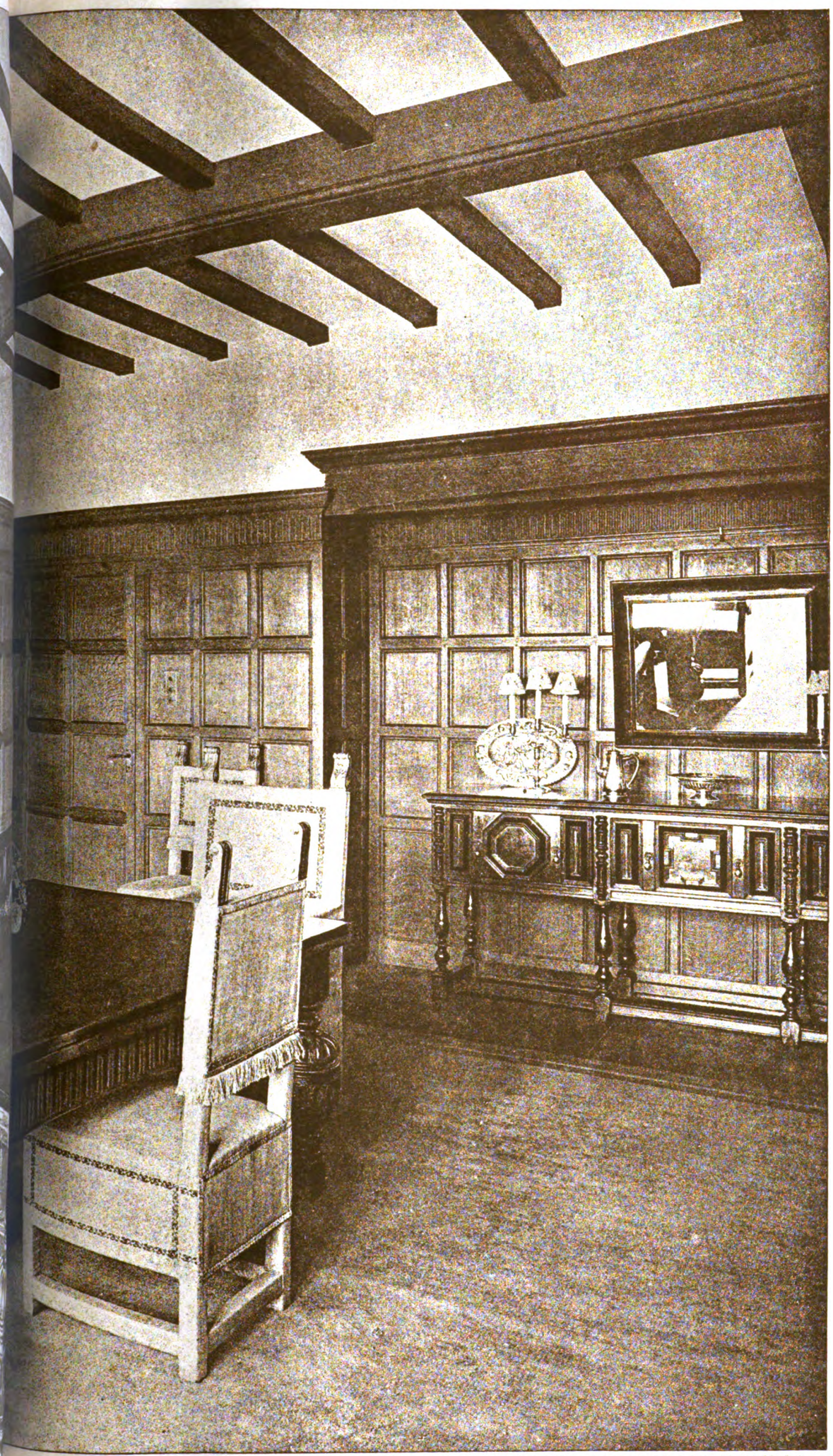


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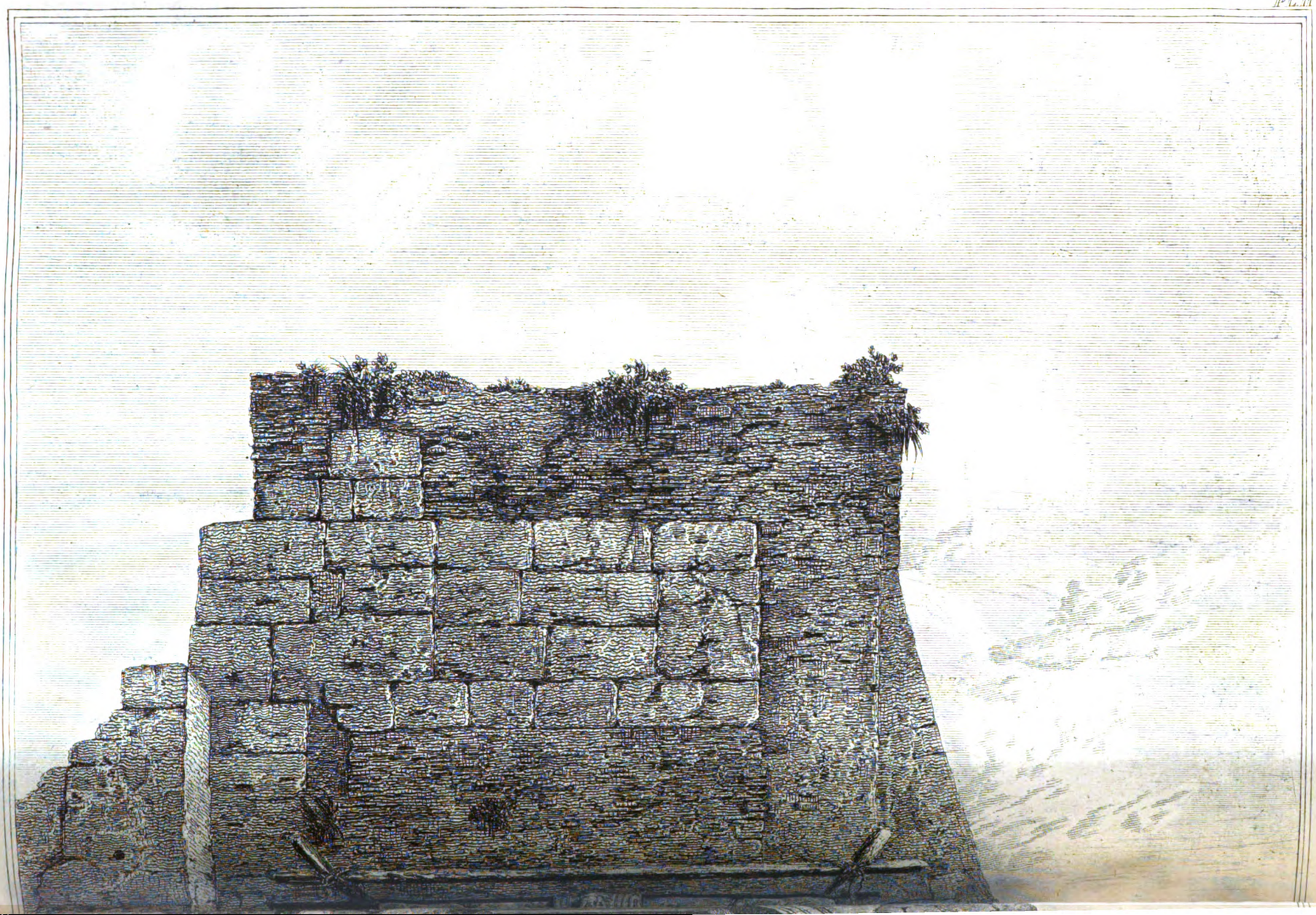
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View of the West Side towards the Forum.

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required. There is great need at this time for inducing the best brains of the country to help local authorities to build the houses required on garden-city lines, with ample garden room to each house. At this time, when the need for food production is so great and people are working in their spare time all over the country to grow more garden produce, there should be no further need to justify development on these lines.

It will be sufficient to say that if this development in food cultivation had started twenty years ago there would be at this time 20 per cent. of the population producing garden produce for their own needs. The Government should insist on proper safeguards for healthy houses being adopted, and not give grants for houses built without the proper precautions necessary to secure such conditions as are obtainable under town-planning schemes.

There is one other point we wish to urge with regard to lending money at the close of the War. The rates of interest then under which the Public Works Loan Commissioners will lend money will probably be high, and we think it important that local authorities should, when the rates of interest fall, be at liberty to repay the money borrowed and reborrow at a lower rate if they can do so, either from the Government or in the open market. If this is conceded to local authorities they will more willingly face the high rate of interest it will be necessary for them to pay.

As to the second part of our memorandum (which refers to legislative proposals which we propose to bring before you at a later date) to some of these I have already alluded. They will deal with the following matters:—Obligatory Town Planning. Proposals as to the Planning of Main Roads. Proposals for Slum Clearance. Acquisition of Land—Power to lease land owned by local authorities to private individuals and to advance to them a portion of the building cost of the houses. Amendment of the Small Dwellings Acquisition Act. Suggestions in regard to the organisation of fully-equipped Town Planning and Housing Departments of the Local Government Boards.

Various other suggestions will be dealt with. These will cover such questions as that of the rating of cottage houses and the abolition of the compounding limit.

We shall formulate proposals in regard to these points and place them before three or four representative conferences so that we can then with confidence recommend action on lines which will be generally approved.

I understand, my Lord, that you are wishful that the deputation should be more in the nature of a conference—that you should ask any questions that may occur to you, and that we should indicate the various members of the deputation who will be best able to reply to any such questions. We have therefore arranged that only our Secretary should address you as well as myself.

Mr. Henry R. Aldridge (Secretary) said:—My Lord, I understand that you desire—and I am sure that all the members of the deputation cordially agree as to the desirability of this course being followed—to question the members of the deputation in regard to various points which we have put forward.

We are here to-day to plead urgency in regard to four points as to which we believe it possible that action might be taken without legislation. We believe that if decisions can be arrived at within a month on these points, an enormous amount of energy amongst local authorities will be set free in the preliminary work of preparing housing schemes.

The first point is that we are asking that the Government should come to a decision in regard to an appeal which we made to your predecessor here, Mr. Long, in September last. We were received with great kindness by Mr. Long—a kindness which has always characterised our meetings with this Board, and we are glad to feel assured, my Lord, that our relations with your Board are likely to continue in the same spirit. Mr. Long was at that time good enough to say that, as far as sympathy went, he agreed fully with us as to the urgency of the problem. Now we ask that without defining the amounts of housing loans, without defining the amounts of the grants-in-aid, local authorities should be told that as and when the end of the War comes, if in the meantime they will get their schemes ready, financial aid will be afforded to them. We urge this point very strongly, on the ground that in the intervening months before the close of the War (and we hope they will be few in number) the time may and should be profitably used in getting housing schemes ready to be placed in operation directly the War closes.

Passing on, my Lord, to the second point, we are asking that inquiries should be made to ascertain where housing action after the War will be needed. We have obtained a certain amount of information, and we could gain a great deal more, but we feel that the only body which can really deal fully with the case is the Local Government Board—and, of course, the sister Local Government Board for Scotland. In this connection I might mention that we have here with us Mr. Whyte—who is Joint-Secretary with me of the Scottish Committee of this Council. He has been appointed a member of this deputation at a meeting held in Glasgow, and is here specially to answer any questions in regard to Scotland.

In our third point we are putting forward a proposal which is somewhat novel, and we feel that there is a danger that it may not be accepted on account of its very novelty. We, however, desire to lay great stress upon it. We are asking the Government through you, my Lord, to set at work the best brains of the country among architects and surveyors on the problems of designing cottages and the directions in which economies may be most advantageously effected. We venture to ask that £150,000 may be set aside for this purpose. With true Scottish caution our Scottish Committee desire to reserve their judgment on three points—first of all in regard to the number of districts for which plans should be prepared, second, with regard to the types of design, and third, with regard to the character of the Committees. But with those cautious reservations, the Scottish Committee are in whole-hearted sympathy with the proposal.

We are putting forward this proposal on two grounds—first of all on the ground of economy, and second, on the ground of the need for improvement in the standards of working-class housing. I venture to think, my Lord, that if this proposal is accepted, though it will cost £150,000 in plans, it may save a great deal more than half a million in actual cost of building, because we are urging that as a basis of these plans standardised component parts may be employed. Those standardised component parts should be determined, and then used in great bulk.

On the second point, that of improvement of the standards of working-class houses, we feel that the working men after the War will desire something more than the "brick boxes" which in many cases have had to suffice for their homes. They will desire dwellings with more amenity both within and without.

The fourth point which we are submitting is that local authorities should be urged to secure sites for housing schemes. We think it is essential that the Local Government Board should call upon them to do this.

In addition, we are placing before your Lordship a series of paragraphs relating to certain proposals on which we wish, with your kind permission, to report to you later. We realise as practical men that when after the War the stormy waters are passed through and we get into the broader reaches and calmer waters of peace, grants-in-aid will disappear, except in the case of the housing of the poorest.

The proposals which I have already described deal therefore with the problem in the year following the War, but in the period then following housing and town-planning action will need to be taken on great national lines, and we hope, therefore, to place before you at a later date a series of proposals relating to the points referred to in the additional memorandum submitted to you.

Before these are submitted they will be thoroughly thought out, for we propose, before bringing them before you to place them before great national meetings, fully

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representative of local authorities and other interests, so that they will thoroughly deserve your consideration and, we hope, merit your approval.

Lord Rhondda: Then I take it you do not propose that we should deal with this additional memorandum to-day?

Mr. Aldridge: No, my Lord, we do not think that this would be advisable.

Lord Rhondda: I know you do not wish or expect me to give you any definite reply to-day. I want to get all the information I can, and I am very glad to have this opportunity of getting direct information from a number of men of practical experience, who have devoted a large amount of their time to the study of a very complicated and difficult question. I want to have it clearly understood that I entirely share the view of my immediate predecessor, Mr. Long, that housing is the most important question this Department has to deal with. It is the question that comes first and foremost. And I would like you further to understand this—that in giving up all my business work at the request of the Prime Minister and coming to take charge of this Department, I have not come here simply to "mark time," but with the idea of doing my very best.

Now you have given me and my friends on this side of the table a good deal to think about and to digest. I think with regard to finance I should like to have your views a little more detailed. You suggest that a sum of £20,000,000 should be set aside.

Mr. Shawcross: We do not now wish to define the amount; we would rather go on the number of houses required to make up the housing shortage.

(To be continued.)

Correspondence

[The Editor will not be responsible for the opinions expressed by Correspondents.]

Professional Classes Relief.

SIR,—The Lord Mayor of London is making through the Press an urgent appeal to the public for subscriptions on behalf of the Professional Classes War Relief Council, the objects of which seem to have been, to a large extent, overlooked by the general public, probably because, as the Prime Minister recently stated, "although certain professions have suffered severely from the war, they are just the professions you never hear a growl from."

To those who, like myself, have been closely associated with our work at 13 and 14 Princes Gate since the war broke out, the real meaning of what suffering in silence has meant to a vast number of highly-educated professional men and women has been brought vividly before us; by unceasing work and with the aid of much generosity from many quarters, we have been able to give assistance in nearly 20,000 instances, and while working in the closest co-operation with the managers of many of the benevolent funds, our great aim has been not to give relief in the form of charity, but in certain centralised forms, which will enable the sufferers to tide over this critical period and resume, let us hope, their normal status when the war ends—such as education for the children, training for young students, musical engagements, and, added to these and many other branches of our work, a maternity home (which her Majesty the Queen has visited) for the wives of all who need this assistance, including those who have been left in reduced circumstances owing to their husbands having joined the colours.

Is it too much to ask all those who read these lines and note the appeal, even in the midst of all the calls made upon them, to remember that here at home, perhaps even next door to them, are those who proudly suffer in silence, wanting, in many instances, not only the wherewithal to pay their children's school fees, but even the necessary clothing to enable them to go out into the world? We have done, I believe, a great work for nearly three years; much more is needed, and I earnestly trust that the Lord Mayor's appeal will bring a response equal to the occasion.—Yours, &c.,

B. I'ANSON BREACH, Chairman of the Finance Committee, Professional Classes War Relief Council.

29 Fleet Street, E.C. 4.

BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders, the address is, as a rule, local.)

ENGLAND.

ESSEX.

Hornchurch.—"Valetta," Sylvan Avenue: additions for Mr. P. Farrington.

GLOUCESTERSHIRE.

Bristol.—Proposed hospital, Ham Green, Redland (£5,500).

HAMPSHIRE.

Portsmouth.—Cinema, Elm Grove, Southsea, for Mr. W. Pannell.

LANCASHIRE.

Leigh.—"Our Lady of the Rosary" R.C. School, Plank Lane: alterations and extensions.

St. Anne's-on-the-Sea.—Business premises, St. Andrew Road South: alterations for Messrs. Plant, Abbott & Plant.

LEICESTERSHIRE.

Melton Mowbray.—The Corn Exchange: alterations. Messrs. Denman & Newham, builders, Thorpe End.

SUFFOLK.

East Stow.—Forty workmen's dwellings. Mr. A. Ainsworth-Hunt, architect, 51 Abbeygate Street, Bury St. Edmunds.

WARWICKSHIRE.

Binley.—Thirty houses, Binley and Grange Avenues, for Messrs. Merry & Cuninghame, Ltd.

Hampton-in-Arden.—V.A.D. Hospital: addition.

YORKSHIRE.

Bridlington.—Works: addition for the Bridlington Gas Co.

Huddersfield.—Proposed Library, Art Gallery and Museum.

Middlesbrough.—The Chapel of the Sisters of the Holy Rood, North Ormesby: addition.

Skipton.—Cottage hospital: additions.

WALES.

Abergele.—Proposed War Memorial public hall.

SCOTLAND.

Glasgow.—U.F. Church, Waterloo and Mains Streets.

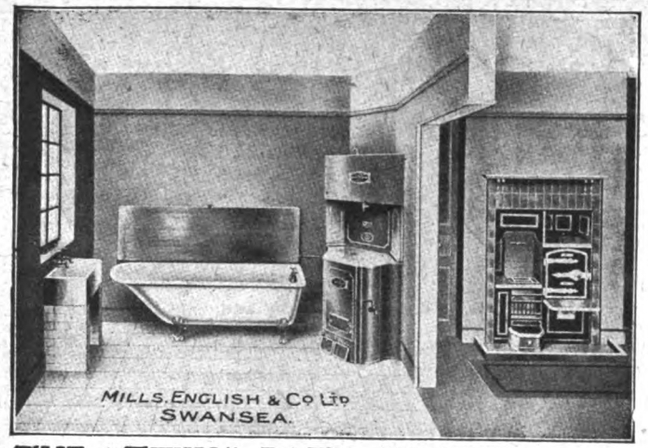
Machine shop, Lancefield Quay and Street, for Messrs. Harland & Wolff, Ltd.

Works, Polmadie Road: addition for Messrs. Alley & Maclellan, Ltd.

Workshops, Petershill Road, for Sir W. G. Armstrong, Whitworth & Co., Ltd.

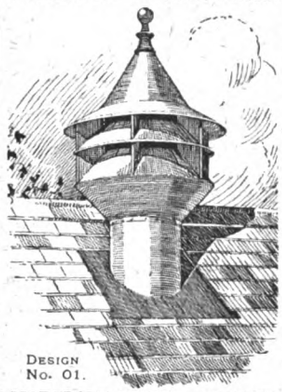
AT a meeting last week of Launceston Town Council the executors of the late Mr. T. H. Nicolls wrote that £1,000 had been left to the Mayor and Corporation contingent on the death of certain beneficiaries, and the payment of other bequests, to build or provide a block of model cottages for the use of thrifty, sober working men or women, to be let at a reasonable rent. The Mayor expressed the Council's appreciation of the handsome gift, which, he said, would come in a very welcome manner in the future, when they wanted to improve their housing.

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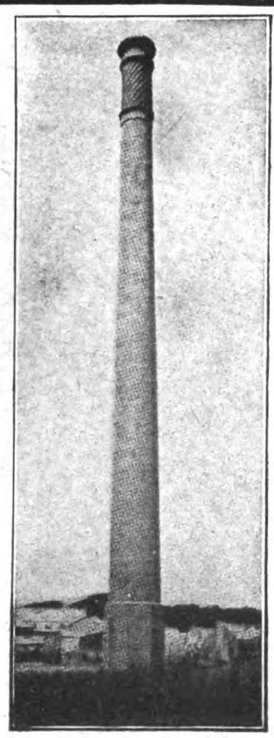
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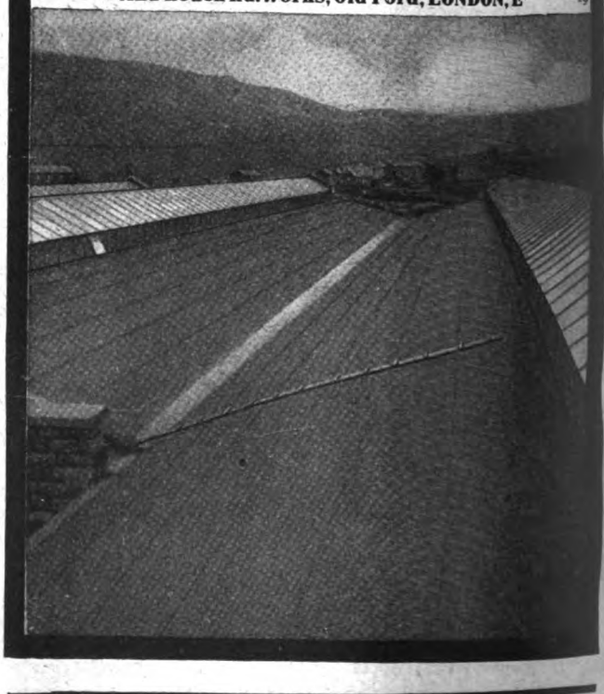
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FORTHCOMING EVENTS.

Monday, June 25.

Royal Institute of British Architects: Presentation of Royal Gold Medal.

Thursday, June 28.

Institution of Municipal and County Engineers: Annual General Meeting (three days), at the Town Hall, Hastings, commencing at 10.30 A.M.

Saturday, June 30.

Edinburgh Architectural Association: Annual Excursion to Dunfermline.

Wednesday, July 4.

Royal Archæological Institute:

ARCHITECTURE AT THE ROYAL ACADEMY.—V.

PUBLIC buildings and business premises do not bulk so largely in the present Academy as they are wont to do in times of peace, and many of those represented owe their inception, and often their completion, to pre-war days. "St. George's Hospital, Hyde Park Corner: elevation to Knightsbridge" (1437), by Messrs. H. Percy Adams & Charles Holden, is a geometrical drawing in ink, with roofs and windows tinted, and shadows projected. A certain amount of character is imparted by the moderate use of balconies and a tetrastyle open colonnade as a central feature, running through first, second and third floors. Messrs. Arthur Hill & H. H. Hill have photographic views showing "Munster and Leinster Bank, Cork: interior views" (1441), and "Munster and Leinster Bank, Cork: frontage to the South Mall" (1443). The exterior is a highly dignified composition, with attached Ionic columns running through first and second floors on a rusticated ground floor. The roof is masked, and set back behind a parapet over the entablature. The interior views depict a colonnaded square hall with free-standing Ionic columns, and a gallery on apparently one side with iron balustrade.

Mr. Edwin Cooper's almost completed building "Marylebone Town Hall: view from North-West" (1445), and "Marylebone Town Hall: views from South-East" (1450), is shown in photographs of a general view with the fine central tower, and of details illustrating the able use of Corinthian columns and the modern fashionable "pseudo-Greek" detail which is the present vogue for municipal buildings, at least externally.

Mr. Frank T. Verity's "Flats, Park Lane, Marble Arch, W." (1442), is a fine block of buildings in which the difficulty of imparting architectural character to a structure of eight storeys and a roof is well overcome by a judicious grouping of windows, the use of balconies and a balustrade over the main cornice.

The place of honour on the West wall of the Architectural Room is occupied by a fine large photograph of Mr. Henry T. Hare's highly successful "University College of North Wales, Bangor" (1447), a worthy presentment of a grand design. The interior of "Senate Room, University College of North Wales, Bangor" (1466), is also shown by a fine photograph, with its panelled walls, ornamental plaster segmental ceiling, stone chimney-piece, and fine metal candelabra, the latter somewhat marred by the sham electric light candles, a feeble solution of a modern problem. Mr. E. Prentice Mawson's "Competitive Design for the re-planning of the Central Area, City of Bradford" (1448), is chiefly occupied by plans and elevations of an Exchange and office building, an irregular octagon, which forms the central feature of the symmetrical disposition of the given area.

Mr. Walter Cave's "Extension to the Union Jack Club, Waterloo" (1449), is shown by plans and elevations, which indicate a large billiard-room and saloon—the latter top-lighted—on the ground floor, with several storeys of cubicles above. The exterior is scarcely enthusing, with large semi-circular headed arches embracing windows of ground floor and basement, with rectangular holes for the windows of upper storeys, and a factitious central feature of pediment and tetrastyle portico. But such a building as this presents undoubted difficulty in the achievement of rational and yet satisfactory architectural character.

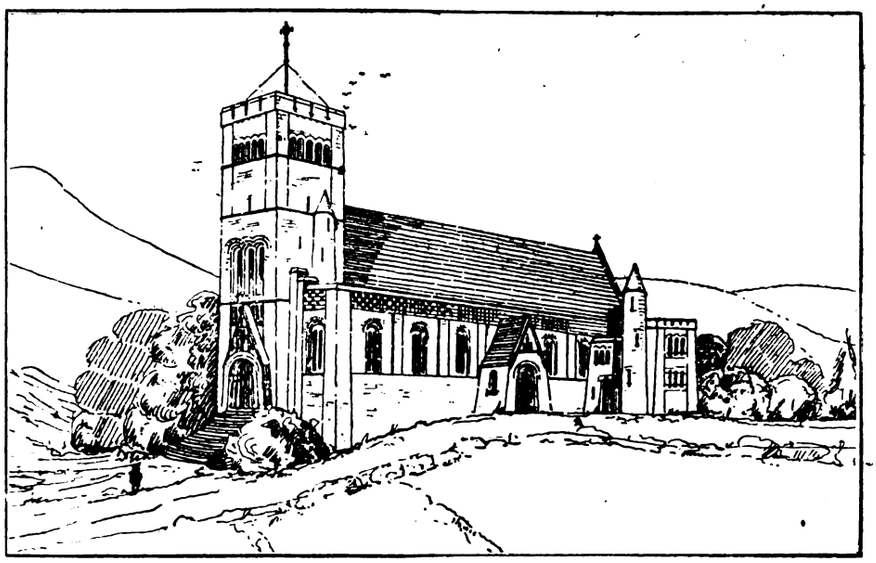
In the treatment of business premises "93 Mortimer Street, W.: exterior" (1451), Messrs. William & Edward Hunt have made their façade a composition in two stages; ground floor and mezzanine in a rusticated basement with big semi-circular headed arches, with an Ionic order for two upper floors of columns and pilasters and blank entablature, a dignified composition with neo-Grec detail. Mr. George J. Coombs has an Italian dream in his "Design for Colonnaded Streets" (1452), in the manner of the renaissance masters of the Palladian era.

A general hardness of line, with unpleasantly-proportioned windows, marks "Offices, Iquique, Chile" (1454), by Messrs. Woolfall & Eccles, and is not relieved by rather meaningless gablets labelled "Iquique" and "Liverpool" as the crowning features of pavilions which, on the ground floor, contain entrances for "Agency" and "Customs." The place names apparently, possibly by a draughtsman's error, appear to have got over the wrong entrances. "Nos. 155 and 157 Great Portland Street, W." (1456), by Mr. Robert Angell, is a decent piece of commercial design, with four storeys and a roof above the plate-glass ground floor, which does not count in the scheme. The top storey is in an attic above the main cornice.

"Proposed Buildings for Leicestershire County Council." (1460), by Messrs. Everard, Son & Pick, is a large block in red brick and stone, nicely treated in good Georgian manner. Messrs. Bradshaw, Gass & Hope's "Manchester Library and Art Gallery: a premiated design" (1462) lacks the charm of novelty, but is nevertheless a fine composition with its dignified two-storey order over a rusticated ground floor and its pseudo neo-Grec detail.

True Greek refinement and feeling is shown in the photographs of Mr. Eustace C. Frere's "General Medical Council Office, Hallam Street, W." (1465), charming both in its exterior and its interior. A large photograph of Mr. William D. Caröe's "University College of S. Wales and Monmouth, Cardiff: library

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NEW CHURCH, NEWPORT, CO. MAYO.

façade to quadrangle" (1475) shows even in this portion of a large building the conjunction of fidgetty and ill-connected detail which marks the general design of the whole. In "New Premises, London City and Midland Bank, Newark-on-Trent" (1467), by Messrs. J. A. Gotch & C. Saunders, the properly chiefly important ground storey has but one range of windows above, with a plenitude of blank wall, which suggests another storey, lighted in some deliberately concealed manner. A peculiarly unhappy effect is seen in the design of the angle which contains the entrance on the ground floor (thus with less height of opening to that of the windows on the flanks), and the upper storey windows denuded of the pediments on the remaining windows of the range and depressed by a frieze rather than accentuated. The carrying up of the angle into a dome upstanding above the main lines completes the unhappy composition of the angle.

Excellent water-colour drawings by Mr. Frank Rimmington illustrate the "Doric Corridor, Cunard Building, Liverpool" (1471) and "Staircase Corridor, Cunard Building, Liverpool" (1477), by Messrs. Willink & Thicknesse, which will be familiar to readers of "The Architect" from photographic views we have recently published. "Under a Temple Portico" (1480), by Mr. H. Heathcote Statham, is a fine imaginative view of a Greek city from an Ionic portico, shown in a delicate pen-and-ink perspective in fine line. A quite satisfactory piece of design in neo-Grec manner is seen in a photograph of part of the "Lancashire and Cheshire Miners' Hall, Bolton" (1479), by Mr. Arthur J. Hope. A good piece of late Georgian architecture is seen in the "Agricultural Laboratory, Rothamsted, Harpenden, Herts: exterior and interior views" (1478), by Messrs. P. B. Freeman & V. T. Hodgson.

A general view and two pieces of detail of "The Council House, Birmingham: three exterior views" (1472), by Messrs. H. V. Ashley & W. Newman, show excellent modern renaissance work of Roman rather than Greek character. An indifferent external photograph and three good interiors show Professor Frederick M. Simpson's masterly handling of Greek detail in the "Entrance Hall: Library; Vestibule to Theatre; and Frontage to Eldon Street, School of Oriental Studies, Finsbury Circus, E.C." (1473).

Mr. Paul Waterhouse pursues his studies of Greek architecture with success in "Prudential Buildings, Leicester" (1306), and "Study for a District Office" (1323), the former a photograph of a completed building, the latter a water-colour drawing. Mr. Sidney K. Greenslade gives us a working drawing in "The National Library of Wales, Aberystwyth: a detail" (1307), which must be caviare to the general, though highly interesting to the professional. Photographs of "The National Library of Wales, Aberystwyth: exterior views," show a fine building in a desert still encumbered with builder's débris.

Further illustrations of Mr. Robert Atkinson's great improvement scheme for Bath are given in three huge drawings (1310), (1315), and (1316). Other large drawings of proposed civic improvements set forth the dreams of Messrs. T. Raffles Davison & D. Barclay Niven for a "Charing Cross Improvement Scheme: view from Whitehall Court" (1326), and "Charing Cross to Bagdad" (1324), the Surrey side development of the same ideal.

A not very pleasing water-colour drawing represents the design for "Central Colonnade in Great Hall, Manchester Royal Exchange" (1311), by Messrs. Bradshaw, Gass & Hope, the colour of whose red marble columns is somewhat overpowering. "New Entrance Buildings for Large Factory, Birmingham" (1312), by Messrs. Buckland, Haywood & Farmer, is a design of outstanding character for an octagonal building, serving as entrance lodge with waiting and reception rooms. Mr. Walter H. Brierley's "London Joint Stock Bank, Newcastle" (1321) is shown by a photograph to be a good example of dignified modern renaissance, with a colonnaded order to first and second floors, on a rusticated ground storey and with one floor in attic over the entablature. The "Sculpture and China Hall, Hulme Art Gallery: Lady Lever Memorial" (1322), by Messrs. William & Segar Owen, is a fine circular apartment with a colonnade of coupled Ionic columns supporting a glass dome. A rather incoherent group of buildings is shown by photographs of "King Edward VII. School of Art, Armstrong College, Newcastle-on-Tyne" (1325), by Mr. William H. Knowles. Messrs. Ivor Jones & Percy Thomas are seen to have carried to satisfactory completion their excellent design for "Cardiff Technical College: front view" (1328) on the evidence of a good photograph.

NEW CHURCH, NEWPORT, CO. MAYO.

THIS church is now in course of erection from the designs of Mr. R. M. Butler, F.R.I.B.A., architect, Dublin, the contractors being Messrs. John Sisk & Son, Cork.

The materials used are the local red grit sandstone, with dressings of the same. The barge and parapet copings are of County Dublin granite. The checker pattern in aisle walls is formed with red local stone and cream-coloured Balla stone alternating. The carved capitals and bases, &c., of the entrance doorway, &c., are of red Dumfries stone owing to the impossibility of carving the

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local stone. The roof is covered with heavy, thick, green rustic Tilberthwaite slates, laid in diminishing courses. Mr. A. E. Agnew is the agent in Dublin for these slates.

Internally the nave is finished with a barrel-vaulted fibrous plaster ceiling, the slabs left rough, and pointed, the moulded ribs, corbels &c., of the roof being also in fibrous plaster. The aisles have roofs groined in fibrous plaster, left rough and pointed.

The floors are of wood block. All the exposed timber work in doors, pews, confessionals, &c., is of oak.

The Communion rails, pulpit, and the chancel and altar steps are of grey Beaumont (Cork) marble, relieved with Connemara green and Cork red marble. The chancel gates are of solid bronze in a Celtic design, enriched with brass and silver and set with crystals and coloured stones. The windows are filled with leaded lights with extra heavy cams by Miss Purser, Messrs. McGloughlin, Dublin, supplying the steel ventilators. All the oak, marble and fibrous plaster work is being carried out by the contractors, Messrs. Sisk, themselves.

NOTES AND COMMENTS.

IT appears probable that in the reconstruction of the devastated area of Dublin the use of red brick and stone will be general for the façades of the new buildings. This treatment seems to have been adopted by some of the owners and their architects, with the approval of the City Architect, Mr. C. J. MacCarthy, and for the sake of co-ordination between the designs of the several buildings, that gentleman inclines to insist upon a similar method being pursued throughout. In reply to a deputation representing the Dublin Trades Council, Mr. MacCarthy stated that in only one instance, that of the Hibernian Bank, was the original proposal for a complete stone building. Certainly, if some owners are allowed to build in red brick and stone it would be difficult to preserve harmony unless the all-stone buildings happened to fit in as dominant notes in the composition of a street façade, but, as we have already stated, in our opinion stone fronts should have been universally adopted for Dublin's important centre.

The distinction between a repair and an alteration is sometimes difficult of exact demarcation, and the Lord Chief Justice, sitting with Justices Ridley and Avory as a court of appeal, has recently decided that in the case of a flat wooden roof the substitution of asphalt for zinc and for felt on a dormer window was an alteration subject to the necessity of notice to the district surveyor.

In Nottingham there is considerable discussion just now as to the proposal for a memorial to the brilliant young airman, Captain Albert Ball. The Mayor favours the erection of a public statue, and has opened a subscription list for the purpose. Others make counter-proposals, and the whole question of war memorials is raised by the view that a general memorial to all Nottingham's war heroes should take preference over a single tribute to the memory of even so exceptionally outstanding an individuality as that of the pre-eminent aviator. Without in any way desiring to belittle the exploits of Captain Ball, it is of course open to question how much of his pre-eminence was due to exceptional luck or opportunity, and there yet remains the possibility that before the war is ended one or more of his comrades may excel his record. We still uphold the view that the time for memorials has not yet arrived, and that collective rather than individual monuments should be made the token of remembrance. Nottingham will need such a record of the heroism of its numerous sons.

Speaking of memorials, we are very much amused at the reports of the proceedings before the Law Society Tribunal when "Mr. Jacob Epstein, 36, a sculptor, passed for general service," was granted three months' exemption, with leave to appeal again. Mr. Epstein "hopes" to be commissioned to design the Kitchener memorial in St. Paul's. No doubt—and so do many others. We hope that the commission will be given to one of our native artists, not to an aspirant who became a British subject only in 1910. It is, of course, mere clap-trap, such as learned counsel are often in technical and æsthetic matters put up to advance, to say that there are only two or three other persons in the world, besides Mr. Epstein, who could do the sort of sculpture which he produces. There are scores, we might almost say hundreds, in Hungary, Austria, and Germany, or there were before the war, who have led the way, before Mr. Epstein was heard of, in the Mittel-Europa school of modern sculpture, with which his work is more akin, than with such obsolete eras as those of Pheidias and the Italian renaissance.

An interesting and uncommon but suggestive form of memorial has been erected by the Stoneywood (Aberdeen) Literary Society, who have placed on the top of Brimmond Hill a bronze tablet, on which is engraved a chart or guide to the conspicuous mountains and other natural features seen from the summit. The chart is engraved on a bronze plate, and the whole work was carried out voluntarily by members of the Guild and by their friends, the memorial being designed by Mr. G. G. Jenkins, C.E., Aberdeen. The inscription on the base of the memorial is—"To the memory of the men of Newhills parish and district who gave their lives in the great war, 1914-191—."

Our British builders should be bestirring themselves. Already a contract has been given to Kennedy, Mitchell & Co., of New York and London, for rebuilding some of the devastated towns and villages. The arrangement has been carried out by the Bank of France and one of the first New York banks, and the contract is for eight million pounds. Mr. W. A. Kennedy states that the present contract, which applies to the Argonne and the neighbourhood of Verdun, is only the precursor of many others.

The annual report of the National Trust for Places of Historic Interest or Natural Beauty records that in spite of the peculiarly difficult circumstances of the past year the council is able to make a report of further substantial progress in the work of the Trust. This is all the more gratifying seeing that the council has maintained its policy of refraining from undertaking any enterprise which would involve any appeal to the public for funds. The financial position of the Trust is satisfactory, but the council hopes that its members will be able to see their way not only to continue their own support, but also to interest others in the work.

The present scarcity of housing accommodation, particularly for the so-called working classes, and the impossibility of rectifying the need under existing circumstances, must necessarily impede the demolition of insanitary dwellings, for many authorities must agree with Alderman Brockhouse, presiding at a meeting of the West Bromwich magistrates, when he said that he could not be a party to driving people out of their houses until other houses were found for them. It was well known that other houses could not be put up now, and people must live somewhere.

Not only the building of decent houses but their proper use must form part of the work of housing reform, and this principle was enunciated at the annual meeting of the Manchester Housing Company, Limited, when Miss Hankinson, the hon. superintendent, pointed out that on the execution of the large building schemes, which must be undertaken after the War, there would arise the opportunity for a great development of the "Octavia Hill Movement"—the principles of which were mainly introduced into the city by the Manchester Housing Company—provided that in the meantime the movement became more generally known and understood. New houses,

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however well built and convenient, might soon become slums unless care was bestowed not only on the management of the houses but on the conduct and welfare of those who inhabited them. "Mutual duties (as between landlord and tenant) mutually fulfilled" was Miss Octavia Hill's watchword, and it was that of the Manchester Housing Company, Limited.

A report of the Housing Committee on tenders for the erection of buildings on the first section of the Spitalfields area, and in reference to the Fairbrothers' Fields, McCaffrey estate, St. James's Walk, Spitalfields, and Crabbe Lane has been presented to a special meeting of the Dublin Corporation. The report of the Committee states that the Local Government Board sanctioned the borrowing of £26,434 for the first section of Fairbrothers' Fields building, and application for the loan has been made to the Commissioners of Public Works. All the sites were in the possession of the Corporation, with the exception of Crabbe Lane, for the acquisition of which an Order has been obtained. As the money was now available for building on Fairbrothers' Fields, for the delay in connection with which the Corporation were in no way responsible, the Committee were bringing before it the building plan. Advertisements for tenders had been published. The amended plan provided for 100 five-roomed, 215 four-roomed, and 253 three-roomed houses, giving accommodation for 2,800 persons. Provision was also made for the erection of baths and wash-houses, public library and reading room, and the provision of two playgrounds. The estimated cost for the first section was £56,500, for the second £62,500, and for the third £49,500, and the road construction £23,010. There appeared to be no further obstacle to having the work proceeded with, and they recommended sanction to the borrowing of £191,510. The report deals with the progress achieved in the other housing schemes.

In a lecture at Birmingham University by Professor T. Turner, on the production of malleable cast iron, in the light of modern needs and research, the professor said the present national conditions have affected this important local industry in a similar manner to that in which other branches of the metal trade have been influenced. There is a call for more and better output; while the chief raw material on which the trade depends is needed in other directions. Under such circumstances, there is need for a fuller understanding of the properties of the cast-iron which can be employed, of the changes which take place during the manufacture, and of the causes and prevention of failures. The industry is chiefly in the hands of relatively small firms, who cannot be expected to maintain a scientific staff; hence co-operation and free interchange of experience is advisable in the national interest. The system chiefly followed in England is what is known as the European or Reaumur method, which was described so long ago as 1720, and by which some 75,000 tons of castings are produced per annum. In the United States of America what are called "black heart" castings are made, by a system introduced as a result of the researches of Forquignon in 1881. The industry has grown so rapidly that already about one million tons of castings are made each year. American charcoal irons are specially suitable for this process; and the interesting question arises as to how far it is possible to make, from other materials than those now employed in this country, a special iron suitable for the European process.

M. Pierre Paris has announced to the French Academy of Inscriptions the wonderful discovery of what may prove to be a second Pompeii. This time, however, it does not lie buried under the lava of Vesuvius, but under the sands of Morocco. In carrying out excavations in the region of Bolonia, on the sea coast, M. Paris first came across an ancient factory, believed to have been established for the salting of fish, and more particularly perhaps of the tunny fish which abounds in those waters. This factory was indisputably of Roman origin, as proved by the style of the columns and marks upon them, careful photographs of which have been taken. Further search revealed on a vast terrace dominating the sea a big house obviously contemporaneous with the factory. The atrium of the dwelling has been completely cleared, and is surrounded by vestibules and chambers, a sketch of the plan of which had been executed. M. Paris says that this is merely a beginning, and that he is convinced a whole town in an exceptional state of preservation can be unearthed.

ILLUSTRATIONS.

HINDHEAD COURT, HASLEMERE.

WE complete this week our series of illustrations of this house, designed by Mr. John H. Howard, which was commenced in our issue of June 1.

ARCH OF TITUS, ROME.

THIS week we present our reproduction of Plate III. from the original copper. Our series was begun in "The Architect" of June 1.

FIRST ANNUAL CONVENTION OF THE INSTITUTE OF SCOTTISH ARCHITECTS.

ON Friday last, June 8, the inaugural meeting of the Institute of Scottish Architects took place in Edinburgh. For several months past an Interim Council composed of representatives from the various Scottish Architectural Societies have devoted much time and consideration to the preliminary work of organisation, including the framing of the Constitution and By-laws, which have now received the approval not only of the Scottish Institute but of the Royal Institute of British Architects, to which body they were in due course submitted.

The first Convention, which is intended to be an annual event, was held in the Royal Scottish Society of Arts Hall, George Street, Edinburgh, and was attended by a representative gathering of architects from various parts of Scotland. In the forenoon the annual general meeting was held; Sir R. Rowand Anderson, F.R.I.B.A., the first President of the Institute, being in the chair. On the completion of the ordinary business, the President delivered his valedictory address, in the course of which he stated:—

The occasion of our meeting here to-day is one of great importance to us as architects. It has long been an ambition of many of us to see a feeling of greater solidarity amongst us, and now we are within measurable distance of that being realised. In place of being a united body, as we ought to be, we have hitherto been a series of independent units and unable to exercise any effective influence on questions of architecture, on which we are competent to speak, or to give mutual and reliable support where we felt there was need of it.

All the legal and medical bodies have a corporate existence. Not so very long ago the accountants were like ourselves, a collection of independent units; they are now united under a Royal Charter, and take a much higher position in the professional world than formerly. The bankers and actuaries are also united, and the same can be said of all the building and other trades; and quite lately the measurers, as we used to know them—now the Faculty of Surveyors—have become an incorporated body; and we architects were, until to-day, the only body without a corporate existence. Now I hope all that belongs to the past, and that we shall now be able to gather up the opinions of architects on all subjects which specially affect us as a profession.

This happy state of things has been brought ab[illegible] by a remarkable unanimity of feeling amongst the archi-

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tects of Scotland. The result is seen in our constitution and by-laws, copies of which you have all received. These documents have been drawn up with great care and thought by representatives sent to meet in Edinburgh to prepare them. Glasgow was represented by John Watson, President of the Institute, with Alexander Paterson, M.A., and William B. Whittie; Aberdeen by Mr. Harbourne Maclennan, President, with William Kelly, A.R.S.A.; Dundee by James Findlay, President, with G. K. Young, of Perth; and Edinburgh by T. Forbes Maclennan, President, and Mr. Lorne Campbell, past President of our Association, and myself. All these gentlemen have given freely of their time and experience to the working out of the constitution and by-laws, and they deserve our grateful thanks for what they have done. In this connection I would specially mention Mr. Whittie, of Glasgow, who has been of the greatest help in this work.

A copy of these documents was forwarded to the Royal Institute of British Architects, with an intimation of what we were aiming at; this was most cordially received and I may here read to you the letter received by our Secretary acknowledging these.

London, 20th April.

Dear Sir,—Your letter of March 31, bringing to the notice of the Council the formation of the Institute of Scottish Architects was laid before the Council at their meeting last Monday; and, Mr. John Watson being present, they were able to hear at first hand an explanation of the objects of the new Institute and the means by which it is hoped to attain them. The Council, I may say, were greatly interested in his remarks, and very sympathetic. They realise the value and convenience of such centralisation and the advantages likely to accrue to the profession in Scotland from the establishment of a central society. The Council note with much satisfaction the reference in the by-laws to the Royal Institute. It will be a great pleasure to them to read a letter on the subject just received from Mr. A. N. Paterson, in which the view is expressed that the Institute of Scottish Architects may serve, in collaboration with the Royal Institute, to extend and strengthen the latter's influence for good north of the Border, while at the same time promoting the Scottish interest in the appreciation of their own national architecture and the encouragement of its development.

The Council desire me to assure you that they welcome very warmly the formation of the Institute of Scottish Architects. Its proceedings will be followed by them with sympathetic interest and with the sincerest wishes that the objects of the founders will be achieved and their aspirations realised. The Council also wish to tender their hearty congratulations to your Institute upon the admirably drafted constitution and by-laws.—Yours faithfully,

(Signed) G. NORTHOVER.
On behalf of the Secretary.

This is most satisfactory, and you will see from it that our relationship with the R.I.B.A. is not to be weakened, and I am sure you will all be glad of this. I believe we shall strengthen that body, because in place of only getting a few individual opinions from Scotland or the influence of those who happen to be members of the R.I.B.A. we shall now be able to collocate the opinions of all our members, and so become a mutual aid to one another in a way hitherto impossible.

The Institute that is launched to-day is not the first we have known. An Architectural Institute was founded in the year 1850, nearly seventy years ago; it consisted of 170 members, 33 of whom were architects. The roll of membership contains the names of many of our leading aristocracy, country gentlemen, university professors, literary and scientific names. It was evidently felt to be a useful institution, as in its third year the membership was about doubled.

The object of the Institute was stated to be the "advancement of the art and science of architecture," and papers were read at the stated meetings on subjects having some bearing on our work; many of them are published in the Transactions of this Institute, and are of considerable value and well worth reading to-day.

As was natural, a great deal of attention was paid to the ancient architecture and architects of Scotland, to which David Laing, Joseph Robertson, and R. W. Billings made valuable contributions.

Many of the problems which we have to face to-day confronted the earlier Institute, and the Transactions bear evidence of their zeal in advocating better accommodation both in town and country for all classes of the people. Carefully prepared reports on the sanitary condition of Glasgow and Edinburgh doubtless contributed to the better conditions prevailing to-day.

In 1852 the Institute acquired a lease of premises at 51 George Street, which they occupied for about ten years.

About this time, that is 1861, the Institute began to publish illustrations of Scottish buildings drawn to scale, and they continued this down to 1871. The buildings illustrated were few and chiefly ecclesiastical, and were only partially surveyed, but the collection contains a measured drawing by the late Thomas Hamilton, architect, of the two sides of the West Bow, Edinburgh, perhaps the most interesting and complete record in existence of an ancient Scottish street. This drawing is now hanging on the wall for your inspection.

With the last of these illustrations it may be said that the work of the Institute ceased after a long and active existence, and, so far as is known, no meetings were ever held afterwards. Several of those who had taken a conspicuous part in its work died about this time, and the secretary had retired and no formal winding up ever took place. One of the last survivors handed over the library books to the Edinburgh Architectural Association, where they still remain. Probably the real cause for the decline of the Institute was that it failed to secure the support of the rising generation of architects; this led to the establishing of architectural associations in Edinburgh, Glasgow, and other places, and to these the youth of the profession adhered and gave their support, and they have all been in active existence since. They are now affiliated to the Central Institute, and are in future to be known as chapters.

There is still room for another chapter being organised at Inverness, and I hope to hear of this being done soon, then the whole of Scotland will be represented in the Central Institute.

Now a word or two on what we must do to prepare for the activities that will arise when the war is over. The Institute of 1850 gave much attention to housing and sanitary questions; we must do the same, and aim at a higher standard than ever. At the foundation of this question of housing is that of getting cheaper land for building on. Before that difficult question is equitably solved very little can be done, and progress in this direction will be slow. Hitherto we have been compelled to pile families on the top of one another, as many as sixteen being accommodated in layers, and all entering off a common stair. I believe attempts are being made to alter this for the better. With cheaper land the building of self-contained houses could also be greatly improved, and sunk floors, sometimes double, could be abolished, and with them the long and high stairs. This would add much to the comfort of those who have to live in such houses, and the domestic servant question would become less acute.

The education and functions of an architect will no doubt engage your attention. This has been under consideration by many Architectural Societies for some time past. A volume entitled, "Architecture a Profession or an Art?" edited by two very distinguished men, the late Mr. Norman Shaw and Mr. G. T. Jackson, besides numerous papers on this subject, will be found in the Transactions of various societies. In the Transactions of the Royal Institute of British Architects for 1906, you

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will find a very complete account of the International Congress held that year in London. Representatives from every country in Europe attended and this question was much discussed. This year there have been several conferences in London on the education of an architect, but after a careful perusal of what was said one feels that no definite conclusion on this subject has yet been arrived at. In my opinion the problem can only be solved by following on the lines of evolution which characterise all the best work of the past.

Another work in which I hope we shall take an active part is what is known as the National Art Survey of Scotland. Nothing quickens the intelligence and interests one so much as getting into contact with good work of the time when architecture was the result of evolution and tradition, and not of a fashion dependent largely on the fleeting literary influence of the day.

There are great educational possibilities in this work, and in carrying it on we must aim at utilising it so as to give a national bias to our own Scottish architecture. A certain amount has been done in this direction and is now beginning to bear fruit, but until we get the surveys completed and published in a form and at a price which will bring this work within the reach of all, its value and influence will not be fully felt.

These are only a few of the directions in which the Scottish Institute will no doubt exercise its activities and influence; others will be dealt with as they arise.

Education is wanted of a practical kind in all work connected with building, not the education of mere drawing and skill in reproducing, and as we see everywhere misapplying, but critical and analytical teaching that will bring home to the student the origin, the nature and development and uses of all ancient work in every department, along with a sound knowledge of all mechanical and natural laws, so as to ensure health, stability and economy. On such lines architecture has a great future before it. In the other constructive arts a similar advance is being made; in many works of civil engineering, especially on the Continent, there is not that tendency to misapply architectural features as formerly; and many works have been, and were being executed before the war, with a distinct expression of their purpose, and a rational treatment of the materials employed. In mechanical engineering, much greater progress has been made. If you look at the design of machinery of seventy and eighty years ago, you will see the five orders of architecture copied with great accuracy, Classic arches with keystones, Gothic arches with spandril ornaments, and other architectural features all applied in a way contradictory to their own nature and the thing they are applied to. The necessity for bringing machinery up to the highest attainable state of perfection led to the gradual elimination of all features and decorative work borrowed from structures in a state of rest, as incompatible with structures full of active strains and thrusts. All the forms are now metallic and modelled like every original structure in nature, to express and emphasise their functions, and nothing is there for mere show. Each machine expresses consequently to the educated eye its purpose in the most remarkable manner.

The designing of machinery, whether for peace or war, has now reached such a high standard of excellence in function, form, and expression, that one is justified in saying that these things are entitled to rank as works of art and also that machinery is the only true constructive art that has been produced since the decline of mediæval architecture. Moreover, in conjunction with the best art of former days, the designing of machinery teaches this important lesson—that man does not, unless warped by bad education and false criticism, construct anything except in a natural, functional, and therefore artistic manner.

A late writer on Art has maintained that fitness and adaption occasion only satisfaction, and not the higher pleasure arising from beauty; but I hold that beauty, if not entirely, is almost entirely composed of those two qualities.

The great and only hope of architecture lies with the public; they must ask for, and insist on getting, structures soundly and sanitarily constructed and adapted to the purposes for which they are erected, then men able to carry out such buildings in an artistic and truthful manner will, by reason of this determination, be called into existence. Architecture must cease to follow the transient literary and æsthetic fashions of the day, the absurd distinction of fine art from that which is useful or mechanical, and of architecture from building, and all the talk about applied art must give way to that which is produced as in nature if we are ever to get into a clearer atmosphere of reality than now surrounds us, and we must put ourselves in line with the science of the day; then we may look forward to erecting buildings fitly representing the ideas and wants of the age with a constant succession of ever-varying expression and beauty, with natural dignity, and not artificial picturesqueness. That time may not be very far away. Ever since the penetration into Europe of the Arabian doctrine of the supremacy of reason over dogma, which many maintain to be one of the chief factors in the renaissance of learning and art, the world of thought has been in a state of transition. The causes that have been ceaselessly at work since then are now gathering great force, and the victory of reason and law seems now assured. When that takes place art of every kind will then be the material expression of it, and the great creative intellect of man untrammelled by worn-out traditions, but utilising all that is good and of universal truth in the past, will have free play, and the world will then see structures greater, grander, and more useful than any that have ever existed.

One other word I would like to say on this day of the fulfilment of a long-cherished scheme for the advancement of our art. We must not forget to remember those young members who are not present with us to-day because they have sacrificed all personal hopes and ambitions and life itself in defence of our liberties, our King, and country. We cannot say what their individual achievements might have been, nor can we estimate fully what might have been the value to our body of their qualities of loyalty, courage, and self-sacrifice, but we do know that the monument they have given their lives to help to build far transcends any fashioned of stone and lime, and all of us who may be spared to enjoy the fruits of their sacrifices must see to it that we show our appreciation and gratitude in every way open to us, and that their names be handed down to posterity and given the highest place on our roll of honour. It only remains for me to wish this Institute a long and prosperous career, which can only be attained by the loyal co-operation of the members with one another and with the Institute now launched.

The members of Council for the ensuing year are as follows:—President: Sir John J. Burnet, F.R.I.B.A., Glasgow; Past President: Sir R. Rowand Anderson, F.R.I.B.A., Edinburgh; Vice-Presidents: James Findlay, architect, Dundee; Harbourne Maclennan, architect, Aberdeen; T. F. Maclennan, A.R.I.B.A., Edinburgh; and John Watson, F.R.I.B.A., Glasgow; Ordinary Members: James P. Bruce, architect, Dundee; A. Lorne Campbell, F.R.I.B.A., Edinburgh; James K. Hunter, F.R.I.B.A., Ayr; William Kelly, architect, Aberdeen; James Lochhead, F.R.I.B.A., Hamilton; Thomas P. Marwick, A.R.I.B.A., Edinburgh; Alexander N. Paterson, F.R.I.B.A., Glasgow; Alexander Ross, LL.D., F.R.I.B.A., Inverness; Thomas Ross, LL.D., architect, Edinburgh; T. L. Watson, F.R.I.B.A., Glasgow; W. B. Whitie, F.R.I.B.A., Glasgow; John Wilson, F.R.I.B.A., Edinburgh; Col. J. B. Wilson, F.R.I.B.A., Glasgow; and George P. K. Young, F.R.I.B.A., Perth.

A largely attended luncheon took place after the business meeting, followed by a visit to the Exhibition of the Royal Scottish Academy, and later in the afternoon a reception was held, at which a considerable number of ladies were present, and many distinguished members of the general public. Sir R. Rowand Ander-

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son and Lady Anderson received the members and guests, among the latter being:—Lord Guthrie, Sir John H. A. Macdonald, G.C.B., Sir J. Alfred Ewing, K.C.B., Sir John Cowan, Sir James Balfour Paul, Mr. John R. Findlay, Dr. W. B. Blaikie, Mr. F. Morley Fletcher, Mr. W. D. Mackay, R.S.A., Mr. E. A. Walton, R.S.A., and Mr. J. Lawton Wingate, R.S.A.

Several speakers took part in the proceedings, including the senior magistrate of the city as representing the Lord Provost, who was unavoidably prevented from being present, and on whose behalf were expressed the good wishes of the municipality for the future of the Institute. Sir John Macdonald, while endorsing the good wishes, took occasion to comment on some of the true and false points in architecture. Principal Sir Alfred Ewing and Lord Guthrie also spoke in a similar vein.

THE SURVEYORS' INSTITUTION.

(Concluded from last week.)

APART from the circular on the employment of clerks of works for the measurement of variations, already referred to under the heading "Publications," the Quantity Surveyors' Committee have been actively engaged in pressing upon the Government departments concerned the desirability, in the cause of national economy, of quantities being provided in respect of the permanent and semi-permanent buildings erected in such large numbers for purposes connected with the war; and the impropriety of their taking advantage of the lack of work arising from the prohibition on building to obtain the services of surveyors at rates of remuneration which before the war would have been looked upon as inadequate.

In addition to the ordinary administration of the Institution affairs, and the matters dealt with in the circulars and reports which have been issued to members, the following subjects have come under the consideration of the Standing Committees during the year: The Telegraph Construction Bill, the Defence of the Realm (Acquisition of Land) Bill, the Courts Emergency (Amendment) Bill, the Food Production Bill, and the amendment of the Agricultural Holdings Act, while a special Committee is still inquiring into the Shortage of Housing Accommodation for the Working Classes.

Although the meetings of the Provincial Committees have necessarily been affected by the prevalence of war conditions, and by the additional demands made upon the time of members owing to shortage of staff and the voluntary work which they have undertaken in so many directions, the Council wish to acknowledge the support they have received from members in all parts of the country in connection with their scheme for dealing with applications for exemptions under the Military Service Act, and their inquiry into the working of the Agricultural Holdings Act; and more particularly would they thank the local Committee for their response to the appeal which was issued in December last for the assistance of surveyors in helping the County War Agricultural Committees to organise and increase the output of home-grown food and timber. In every direction members appear to be taking an active part in this important national work, and the Council are pleased to be able to report that the information they have received indicates that the profession has fully realised its responsibilities and opportunities in this connection.

The Institution is in particular indebted to the chairmen and secretaries of the committees for their co-operation at the time when so many calls are made upon them in these matters, and also in the expeditious manner in which they have dealt with the many questions referred to them in connection with the examinations and applications for transfer to the fellowship.

The year has brought with it a number of military distinctions to members of the Institution. Apart from mention in the despatches, the following honours are known to have been gained, though the list is doubtless incomplete: Two C.M.G.s, seven D.S.O.s, one M.V.O., an Order of St. John of Jerusalem, one Distinguished Conduct Cross, thirty-four Military Crosses, three Distinguished Conduct Medals, one Military Medal, and one Meritorious Service Medal. In four cases foreign distinctions have been awarded: The Croix de Guerre of France, the Russian Order of St. Anne with Swords (Third Class), the Serbian Order of the White Eagle, and the King of Serbia's Gold Medal.

Besides the matters already referred to, the Council have dealt with many others. The serious agricultural position has been the subject of correspondence between them and the Board of Agriculture, and they have also made suggestions to that department for meeting the difficult questions which must arise in connection with the breaking up of grass land. Their opinion has also been asked as to whether tenants of agricultural land whose hay or straw was commandeered for military purposes were bound by the ordinary rules requiring an equivalent in manurial value to be returned, a question they answered in the affirmative.

Members of the Council have been called in to advise the Forestry Sub-Committee of the Reconstruction Committee on the acquisition of land for planting; while others have conferred with the War Office authorities on questions connected with the taking of houses and land for military purposes.

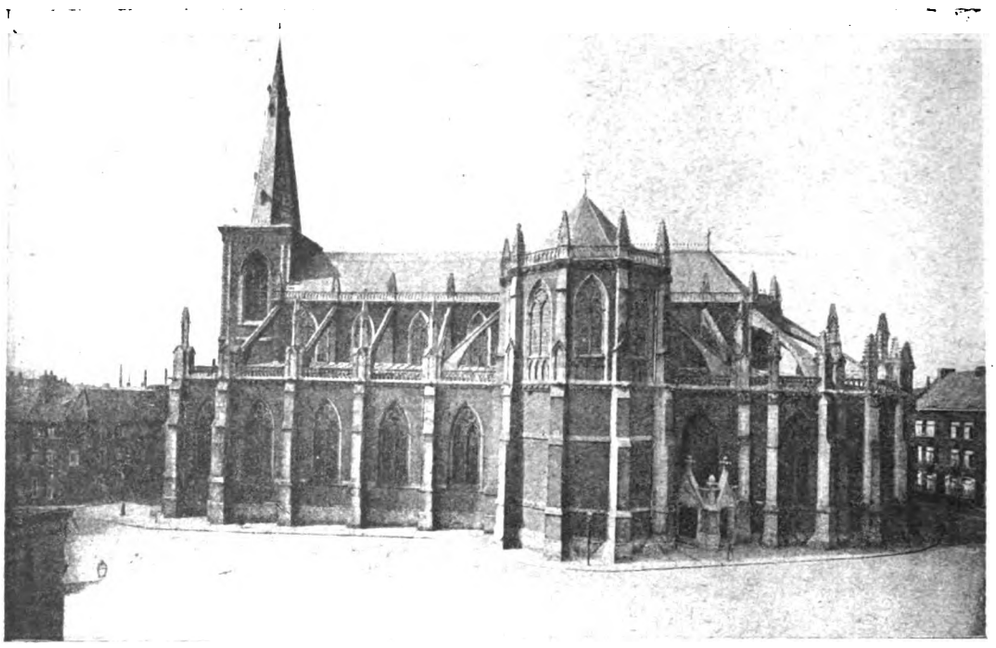
Before the war the question of the rank given to officers of the Royal Engineer Services, which is merely honorary and not substantive, was the subject of communications between the Council and the War Office authorities. With the mobilisation of this branch of the Army on the outbreak of war, and its subsequent augmentation by the appointment of a large number of architects and surveyors as inspectors of works, the question became more acute, and has been the subject of strong representations made jointly by the Royal Institute of British Architects and the Institution. It is to be regretted that up to the present the justice of placing these services in a position similar to that occupied by other non-combatant branches of the Army has not been recognised.

The Council was represented at the deputation to the President of the Local Government Board in October last on the subject of the traffic problem in the Metropolis, and the urgent necessity of steps being taken to carry out the scheme of arterial roads which had been approved by authorities from all parts of Greater London. The representatives of the Institution drew attention to the rapid development of building estates in the east of London since the commencement of the war, and laid stress on the importance of powers being given to some authority for the purpose of definitely fixing the routes of these roads if the opportunity for carrying out this much-needed improvement was not to be lost.

Communications have been addressed to the Petrol Control Committee urging the claims of members responsible for the management of large areas of agricultural land and woodlands to be placed in a favoured category with regard to licences for petrol. While the Committee expressed their regret that they were unable to classify members for special treatment, the Council are pleased to be able to report that they stated that they were prepared to consider cases of hardship which might arise with regard to agents and surveyors coming within the above description.

The Council took part in two interesting conferences connected with examinations, one at the Board of Education, called by the promoters of the British Prisoners of War Book Scheme (Educational), having for its object the provision of the means for prisoners of war to continue their professional studies and, possibly, to complete their examinations; and the other called by the Teachers' Registration Council for the purpose of co-ordinating and systematising the entrance examinations of professional and educational bodies.

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ARMENTIÈRES—CHURCH OF ST. VAAST.

It having come to the notice of the Council that Army Form B. 199, dealing with the record of services of officers coming up for promotion, referred to the Certificate in Surveying issued by the Royal Geographical Society, while making no mention of that of the Institution, they drew the attention of the War Office authorities to the omission. A promise to rectify this omission was at once given.

An important communication was received in January last from the Director-General of the Survey of Egypt, asking whether the Institution would be prepared to co-operate with his department by keeping a list of candidates qualified to fill posts on his staff. Details of the arrangement have still to be settled, but the Council have expressed their readiness to place the resources of the Institution at the service of the Director-General in organising such a scheme.

During the year members of the Institution have been selected to fill a number of important official posts, among which may be mentioned: Member of the Royal Commission for investigating the charges against Sir John Jackson & Co. in connection with the erection of Army huts; Members of the Advisory Committee on agricultural matters set up by the President of the Board of Agriculture and Fisheries; Agricultural Adviser to the Board of Agriculture; Supervisor for England and Wales of claims made against the Board through the County War Agricultural Committees; Director and Commissioners of the Agricultural Section National Service Department; Director of Lands to the War Office and Ministry of Munitions; Consulting Surveyors to the Lands Department of the War Office and Ministry of Munitions; Members of the Agricultural Policy Sub-Committee of the Reconstruction Committee, the hon. secretaryship of which body was accepted by the Secretary of the Institution. The Council desire to recognise the important service which Mr. Goddard has rendered, by acting as hon. secretary to this important Committee, and by placing his valuable experience at its disposal and devoting much time to its work.

The use of the Institution rooms has been given without charge in a large number of cases for official conferences and committees connected with the war, and also for meetings of societies having kindred interests with the Institution, the numbers being fifty-five of the former and twenty-seven of the latter during the year.

ARMENTIERES.

THE vast railway-station, with its extraordinary number of tracks, would naturally convey the impression to the visitor alighting there for the first time that behind it lay a town with at least as much interest, architecturally, as, for instance, Hazebrouck or Douai, where there is at least something worthy of note.

But disappointment awaits him. True, there is a convenient, fairly wide, half-kilometre approach from the station to where the tramlines meet—one of them by the winding, rather narrow street that leads to the Grande Place nearly a mile away; the business premises on the route, and the houses above them, are as a rule unpretentious, and their main feature is the clumsy wooden projecting cornice with the square blocks at close intervals, which is so terribly overdone in Belgium and France. Some of the houses, though, are of big blocks of grey-brown stone. The irregularity of the thoroughfare is its saving feature. The street abuts on the upper corner of the Square, which is of considerable size, and from that point of view the effect is distinctly pleasing.

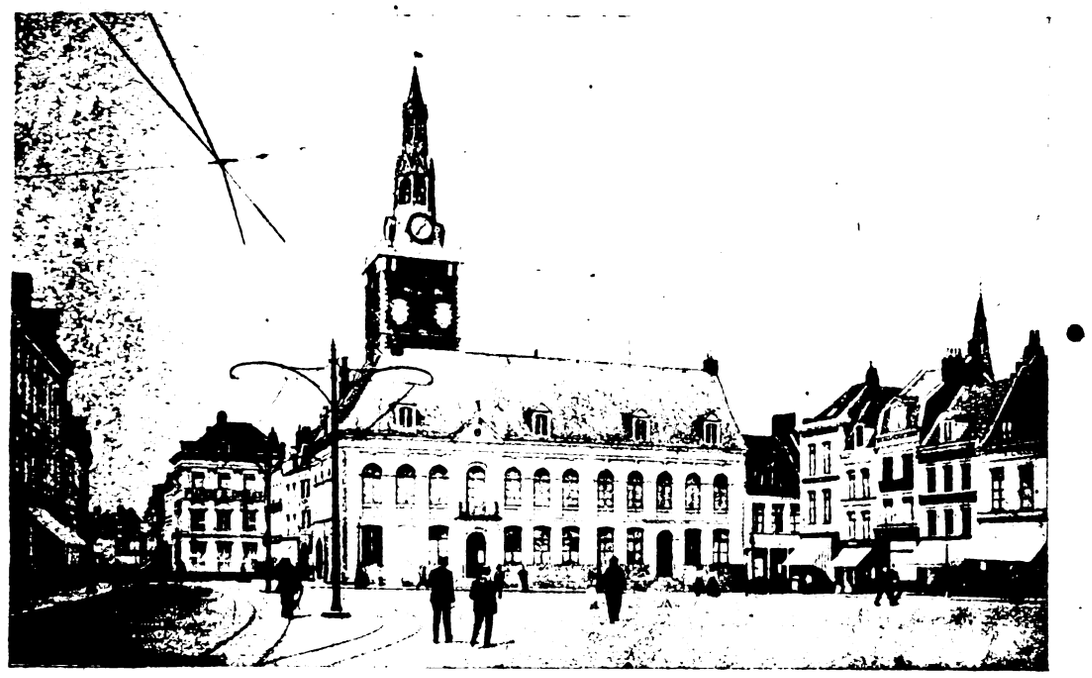
At the far upper corner, where the street is continued, stands a seventeenth century lofty slender belfry, with a fairly good chime, in a spire not unlike Douai's, the lower part like Bapaume's.

Behind the houses, at the lower corner, rises a huge wooden Gothic church—Gothic, that is to say, in its constructional outlines and the shapes of its doors and windows, with lofty apsidal transepts (unlighted in their lower portion), but the detail work is terrible, while internally the whole is appalling, and the crudely-drawn and gaudily-coloured almost transparent glass is a nightmare, set in a framework of fantastically-designed polychrome painting. The fittings are equally bad in taste, design, and detail. The south porch, east of that transept, is grotesque, and the flying buttresses are exaggerated: the pinnacles on them and on the parapet all round the church are stumpy, through lack of finials.

The approach to the church from the Grande Place is by some narrow and poor streets, but there is another fairly large Square on the south side of the church, whence the full length can be seen.

The tower, which has no parapet, is a stage too low, as it does not rise over the projecting west porch

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ARMENTIÈRES—GRANDE PLACE AND HOTEL DE VILLE.

higher than the nave roof, and the very plain spire looks awkward on it.

The river Lys, with its busy quays and barges, runs at a little distance below, on the north side, dominated rather finely by the church.

It is unfortunate that the design of the building and of its decoration was not confided to more capable hands.

There is a small modern church near the station, in a by-street near the tram meeting-place, with a noble peal of three large deep-toned bells, quite the best in the town, and worthy of a cathedral.

THE TOWN PLANNING INSTITUTE.

THE discussion of the paper on "Road Construction and Improvement by means of Town-Planning Schemes," read before the Town-Planning Institute, commenced in our last issue, was concluded as follows:—

Sir George Gibb congratulated Mr. Rees Jeffreys on the very able, painstaking, and comprehensive paper he had submitted, and also the Institute on having secured a paper which so thoroughly explored one of the most important questions that had to be dealt with in the near future. Mr. Jeffreys had compiled an immense mass of most useful material in that paper, and he had submitted some very sober and moderate views as to the future possibilities of action in regard to town planning. He (Sir George) thought there was a general recognition now of the great importance of the various matters covered by the general term "town planning." There was no doubt we had learnt through our suffering from the neglect of town planning in the past the vital importance of seeing that in future development, in the development now going on of towns, the same errors should not be repeated. Formerly, people relied, of course, very much upon individual enterprise, and he thought they were quite right in doing so, and one fundamental idea at the bottom of that policy was that each man had a right to do what he liked with his own. Well, a landowner was allowed under that policy to do what he liked with his own land, and in following out that it was the existence of a public interest in the laying-out of estates for building purposes which was ignored and forgotten. Now we had got beyond that stage. There was a universal agreement that the public interest in these matters must be conserved; and in order to conserve public interest it was essential to introduce the action of public authorities. But he was not sure that we had got much beyond the recognition of the principle. A great step in advance was taken by the passing of the Town-Planning Act. He thought there was a general impression that the results of that Act hitherto had been disappointing, but he was not sure that when looked at carefully and dispassionately we had any reason to complain of the delay which had taken place in securing the results anticipated. No doubt there were causes which made delay absolutely necessary. The legislation was, he thought, rather in advance of public opinion, but the passing of the Act had itself stimulated public opinion, and the action of an Institute such as that, and the reading of papers such as the one they were discussing, had a very valuable educative influence upon public opinion. Then another cause of apparently disappointing results might be defective machinery. The author dwelt a good deal in his paper on that, and thought some central initiative was necessary. With regard to that one must remember that defects in machinery rarely stopped progress; they might delay it a little, but they did not stop it, and he thought if public opinion in this matter were active and alert any defects in machinery would have very little influence in delaying practical progress. Mr. Jeffreys' paper looked at the question of arterial roads by itself. Of course, there was a vast number of road questions which had no bearing upon this question of arterial roads in the neighbourhood of big towns, and he conceived that in discussing the question there they confined their treatment of it to the construction of new roads in the vicinity of towns. They were not thinking of the question of arterial roads for through communication throughout the country, and if he might venture to say so he thought that was a very useful conservation of energy. He was quite sure people made a great mistake by running after too many hares at one time, and very often they failed to catch any one of them. It was quite right in considering these questions to consider them one by one, without, of course, ignoring that they must take a comprehensive view of the whole subject; and it was very important, he thought, that they should clearly envisage their aim. The need for arterial roads was plain, definite, and urgent; but he was not sure he ever used the word "great" in speaking of an arterial road, and he was always very shy of using the word "arterial" at all in this connection. He conceived the question to be not the construction of roads in addition to the roads which in the ordinary course would be

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made and were required, but it was to secure that the roads which in any event were made, and must be made as building extended beyond the towns, should be well planned, well designed, and well executed. If a road was made to meet local requirements it could generally, without very much alteration, be made to serve the needs of through traffic, which were in themselves needs in which the locality was interested, because the roads that they talked of as arterial roads, so far as they were roads of approach, of access, in connection with towns, were really needed for, and used for, traffic going to and from the towns. He thought of this matter far more as a question of getting the roads well planned than of getting, as one speaker put it, chief roads, arterial roads, for the general service of the motor community or of any other class of users. If they thought of the road in that way, he thought they had got a great step towards the simplification of the problem, which seemed to him absolutely necessary in order to secure practical progress. They must acknowledge that even in regard to the simpler question of laying out roads in the neighbourhood of big towns finance was perhaps the main cause of delay. It was very difficult indeed to suggest any financial scheme which had any practical chance of being accepted by the authorities. Personally, he did not think that any great changes in organisation were needed, or that they should attempt or think of taking the matter out of the hands of the local authorities. What was wanted was, first of all, the cost of surveys, the cost of proceedings under the Act dealing with purchase and other works, which might be required in connection with each road laid out, with a view to through communication as well as to local requirements, but which could be avoided if they were thinking only of local requirements of building. He thought that was an item of cost which fairly had to be considered and provided for. Then there was the question of compensation to landowners, because obviously if they laid down roads in the first instance by themselves, they must provide for compensating landowners on that basis only. In his view, if these problems were to be solved, and solved quickly, it was necessary to simplify the procedure and to get an Act passed that would enable the local authorities to plan the roads and sterilise the sites at once. If that were done he did not believe that it would be difficult, through Joint Committees or through various procedure that might be adopted in the various localities, to get the authorities concerned to agree on the lines of those roads. In that way the future would be preserved from those evils we now suffered from owing to neglect of the past, and would allay any apprehension we had that new areas which were to be built on would be built on without good roads being provided, adequate for all the public needs, whether local or general.

Professor Adshead (Professor of Town Planning in London University) urged that under the Town-Planning Act we had all the legislation that was necessary to lay down the lines of roads, and what was needed was to secure continuity of direction and combination between authorities. There was no real difficulty in regard to the planning of roads; the basic difficulty was, of course, the finance. He suggested the establishment of District Road Boards, consisting of representatives of existing authorities, to have the control of main roads, and the formation of a central authority to which the Road Boards would have to submit their road and town-planning schemes.

Mr. Shrapnell Smith said the author dealt with the subject of town linking, which seemed to him a happy recognition of the fact that development of transport was essentially associated with town-planning schemes. If housing was to receive one of the earliest grants from the Government, it was clear that it was useless to put millions of people into new areas if they did not give them means of linking roads to get commodities to feed them.

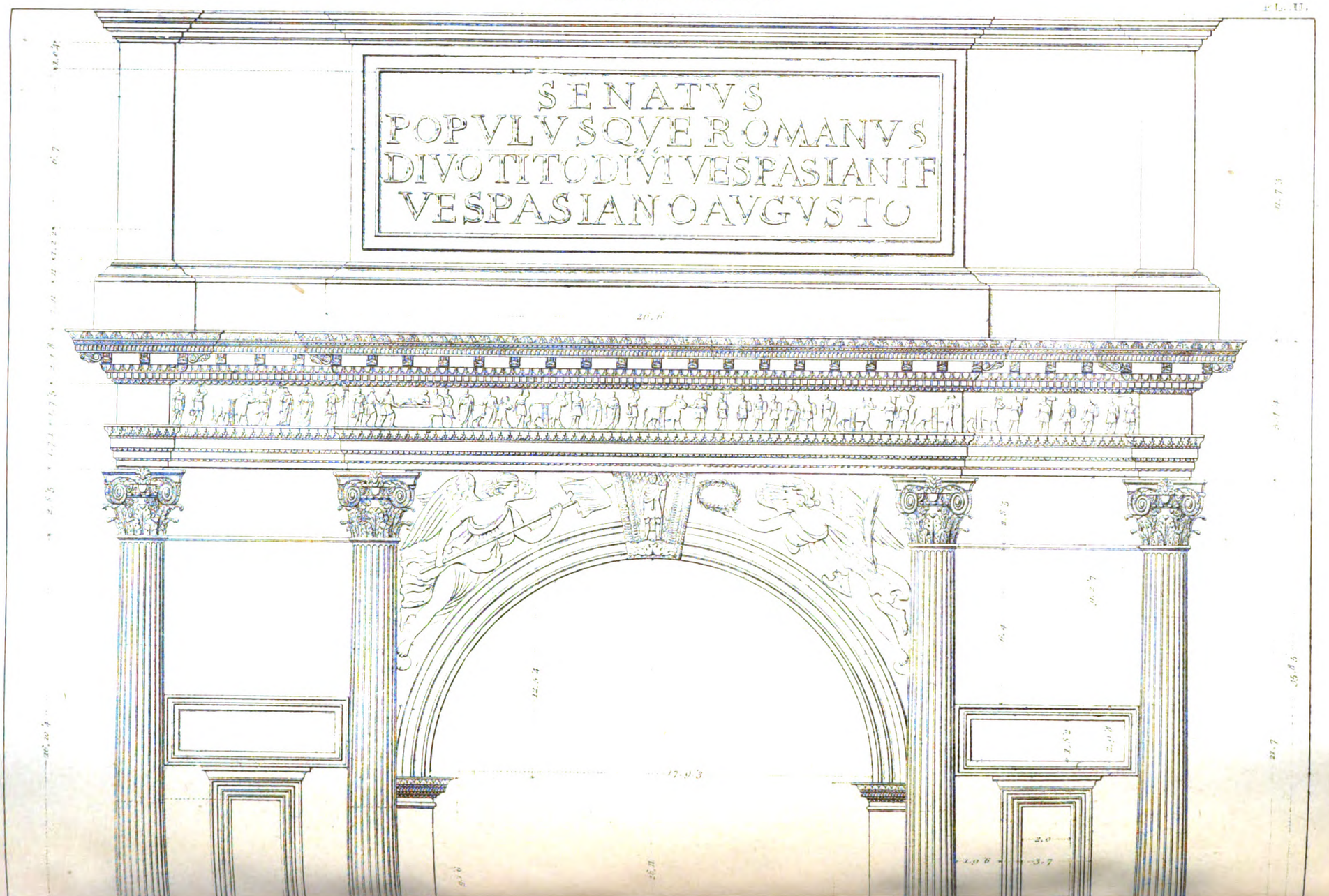
Mr. W. R. Davidge, F.S.I., A.M.I.C.E., A.R.I.B.A., observed that they felt that some form of District Board was desirable, preferably by some sort of union of authorities. If merely a hotchpot, such boards would not be successful. Give such boards a definite revenue and a definite business to carry out, and definite success, he thought, was assured.

The President said he wished to add his thanks to the thanks of the Institution to Mr. Rees Jeffreys for his paper, and called upon that gentleman to reply.

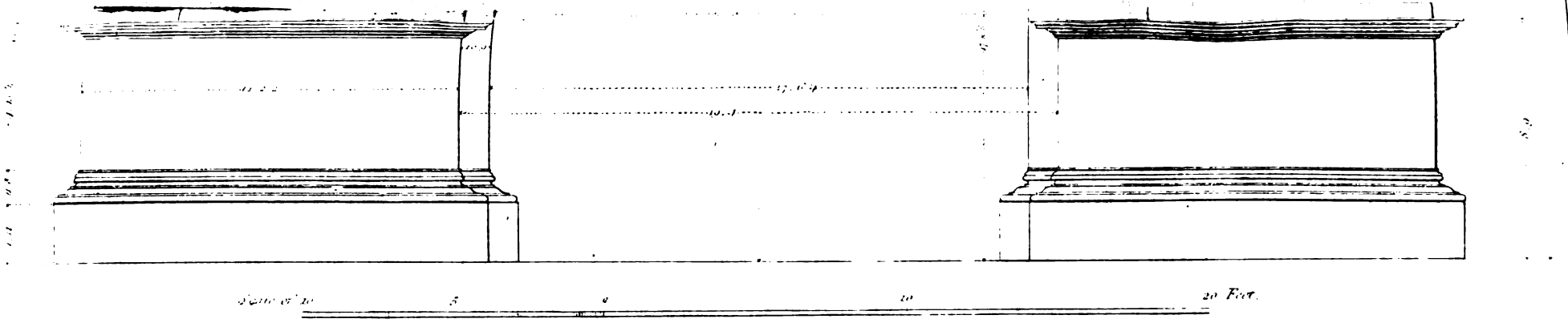
Mr. Rees Jeffreys, in replying, said his great reward for the paper was that it had stimulated discussion. He thought it had helped to bring out varying points of view, and so they were somewhat on the way to an agreement. Mr. Davidge, he thought, summed up the position in the few remarks he favoured them with when he said they were more or less agreed that it was necessary to get a combination of authorities to deal with these matters, and he hoped the Town-Planning Institute would do its best to bring that result about. After the war things were going to be put into the melting-pot, and those people who had the clearest idea, the most definite programme of what they wanted out of that melting-pot, were the more likely to realise it, especially if those ideas were practical ones. He thought they would have to go a little more than they had that night into the question of finance. Mr. Shawcross talked about grants on a liberal scale, and apparently he based the future of town planning on getting such grants from the Central Government. He (Mr. Rees Jeffreys) did not share Mr. Shawcross's anticipation. He did not want to base the progress of town planning and housing designs upon grants on a liberal scale, because he feared it was very possible they might not get them, and he wanted, at any rate, to make their plans in connection with road improvements, town planning, and housing on the assumption that they would not get grants on a liberal scale. If they did get them, so much the better; they would be able to do so much more work. But do not let them make as a starting-point the assumption they would get grants on a liberal scale, and if those grants were not forthcoming, then all their plans tumbled down. Waiting on the State was fatal to progress. They must regard the provision of arterial roads under the Town-Planning Act or by any other machinery as the work of local authorities. He did not think, for many reasons, that the State would ever undertake to itself provide arterial roads wherever they might be asked for. It seemed to him that the arterial roads as new approach roads to London would have to be provided by London—he meant Greater London. Modern London now extended to 40 or 50 miles from the centre. That was the unit affected, and that unit would have to find the money for those roads in so far as they were not built by private enterprise. If they started from that basis and built up their plans on that assumption, then, if they were successful in getting any additional money from the State, it meant they would be able to make much greater and much quicker progress than they otherwise would have done. He thought, therefore, that the next practical step was to try and induce Parliament to combine existing authorities, to create Joint Committees that represented the unit affected, and get those bodies constituted and properly equipped in order to get town-planning schemes and new roads—through roads as they were developed for building—provided for and constructed. He referred to a memorandum he drew up a good many years ago and submitted to a Commission, in which he projected a Joint Committee of this character. He was still of the view he held at that date, and it was by the formation of these Joint Committees, properly equipped, and drawing revenue from local sources, that they could alone expect to find the money to construct arterial roads and deal with the traffic problem. If that was the correct view he thought the Town-Planning Institute should work along that line, and, by putting forth practical proposals, which did not involve the provision of large revenue by the State, endeavour to take another step forward. He thought

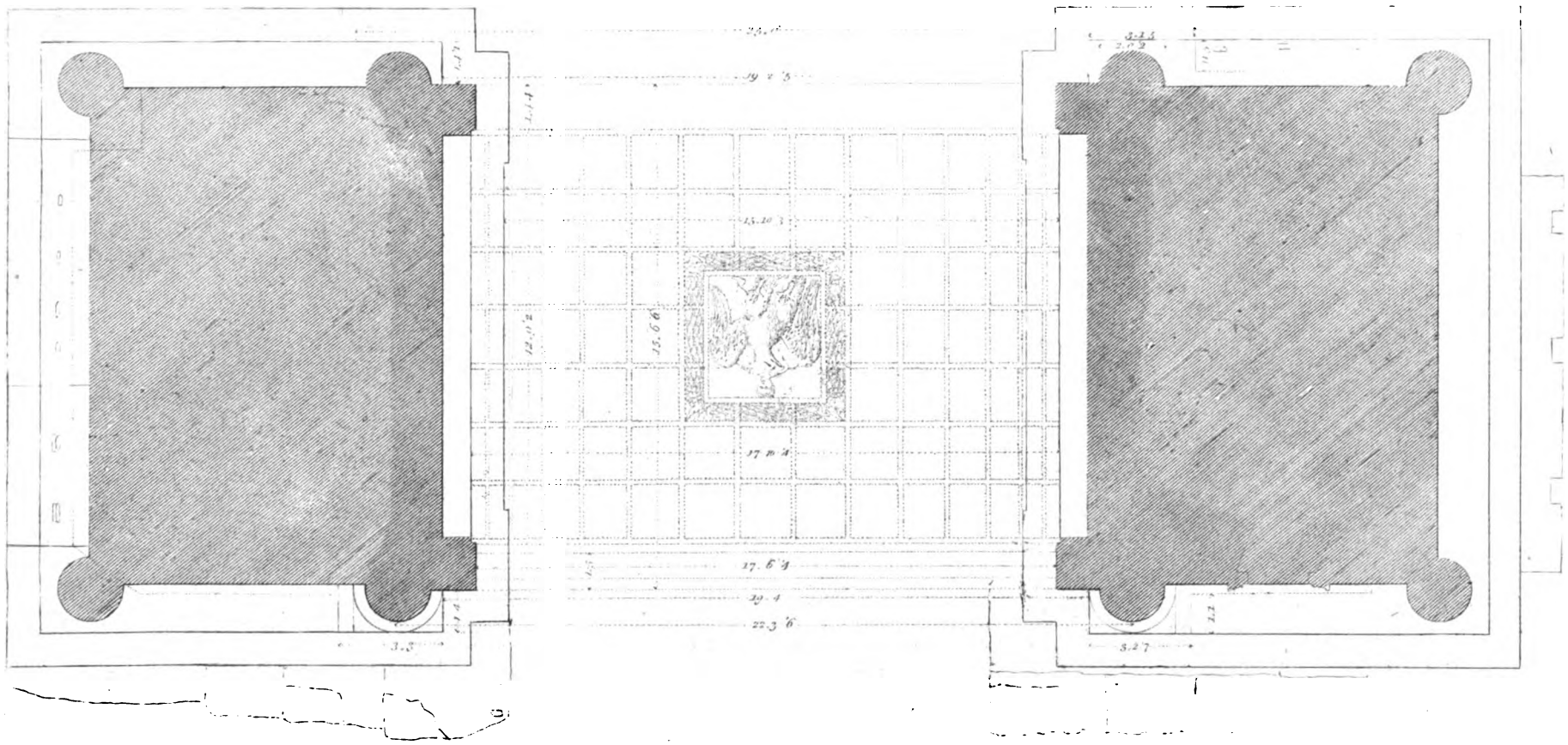
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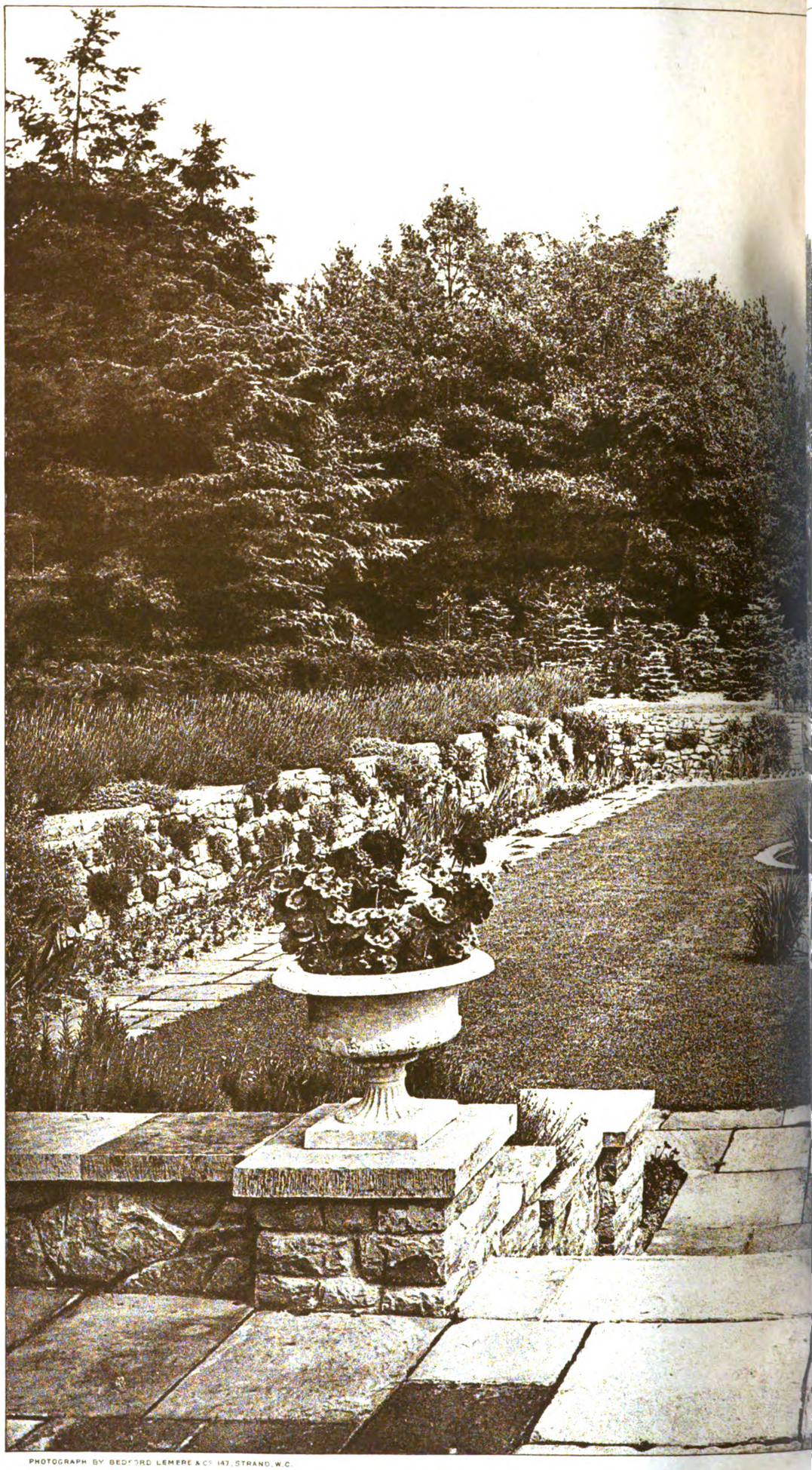
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that if they thought out this problem in detail, and put before the Government, the Local Government Board, or the Reconstruction Committee—whichever authority had to deal with the matter—practical schemes of that sort, there was a chance of real progress being made.

The proceedings then terminated.

NATIONAL HOUSING AND TOWN PLANNING COUNCIL'S DEPUTATION TO THE PRESIDENT OF THE LOCAL GOVERNMENT BOARD.

(Continued from last week.)

THE first portion of this report of the deputation to Lord Rhondda appeared in our columns last week, and the following is in continuation of same:—

Lord Rhondda: How long a period do you think it would take to put the whole position right? There was a deficiency of houses before the War, and that has increased since, but I take it you do not think very much can be done to rectify this state of things before the conclusion of the War?

Mr. Shawcross: No.

Lord Rhondda: How long do you think it will take after the War? You do not propose, for example, to do everything the first year after the War?

Mr. Shawcross: At a largely attended Workmen's Conference held in Manchester, I submitted an estimate to the effect that to supply the deficiency in housing accommodation and to allow for clearing away slums it would be necessary to build 160,000 houses annually for the next ten years.*

Lord Rhondda: After the War I assume the first thing would be to provide new houses?

Mr. Shawcross: The idea would be that new building would be done in the first year, so that in the second year there would be a certain number of houses available for people disturbed by the demolition of slums.

Mr. Aldridge: We all agree with what Mr. Long said, viz., that £20,000,000 was only an index of what might be required. We think that his view was thoroughly sound. As regards the housing shortage, the following estimates have been made:—Rural England, 120,000; Scotland, 120,000; Wales, 60,000. (This estimate is given to me by Mr. Ruthen.) These figures do not include estimates of the urban shortage in England, and it would seem, therefore, that the figure of 500,000 quoted by Mr. Hayes Fisher when a recent deputation was received by you, my Lord, is well within the truth.

Lord Rhondda: The building trade before the War employed over 900,000 persons. How many men do you think would be required to put up all the houses you contemplate?

Mr. Aldridge: From calculations made I think a third of the men employed in the building trade could produce at least 150,000 to 200,000 cottages per year.

Mr. Dickinson: I should be very glad to know what proportion of the £40,000,000 (mentioned by Mr. Shawcross) you anticipate would be provided by private enterprise.

Lord Rhondda: We want to quite understand this. Do not think we are hostile. We do not want to commit you, or to catch you in any way; we only want to get your views.

Mr. Dickinson: It is a very important point.

Mr. Aldridge: We discussed the point at considerable length this morning, and the general feeling was that in the period immediately following the War private enterprise will do very little work, relatively, in cottage building.

We therefore take the view that the bulk of the work in that period must be done by public or semi-public authorities. The cost of building will depend on many factors which are unknown at present. The estimates of the added cost vary from 15 to 20 per cent.

Lord Rhondda: I do not want to commit myself to any expression of opinion at this stage, but I understand you to say that immediately after the War private enterprise will be of very little assistance in building cottages, whereas prior to the War most of the cottages were built by private enterprise and very little of such building was done by local authorities.

Mr. Shawcross: Just prior to the War private enterprise forces were not doing it, my Lord, because it did not pay them.

Mr. Hayes Fisher: Suppose that landowners and employers could get the money lent to Public Utility Societies?

Mr. Aldridge: Developments of that kind might produce the desired result. I am informed by one of the leading industrialists in the North of England that the cost of erecting houses in connection with big works is so great that employers of labour, as distinguished from rural landowners, will not undertake the burden. It is estimated that to house the workmen employed in a great concern takes an amount equal to half the capital invested in the concern.

Mr. Hayes Fisher: But supposing the agricultural labourer were paid a minimum wage of 25*s*., or perhaps more, would there not then be a marked difference in the prospect of a return to the old system, and of the landowners putting down the money if they could borrow at a reasonable rate of interest?

Mr. Aldridge: The increase in the cost of food will be such that unless the minimum wage is fixed higher than 25*s*. men will not be able to afford increased rent. But the question of whether money should be lent to the rural landowner is one that we have not discussed.

Mr. Smethurst: I do not think we should have any hostility to employing private enterprise for this work.

Mr. Dickinson: One would really desire to know what the request would be to the Government as to the total amount of money which should be forthcoming.

Mr. Shawcross: We also want to find that out. We can only give you various estimates that have been made.

Lord Rhondda: If we are going to get valuable replies from the local authorities we must give some indication of the Government policy; otherwise we shall not secure satisfactory answers.

Mr. Shawcross: If you could say to the local authorities, "We will give you such an amount as will bring the cost of these houses down to what they were before the War," there would be some data on which they could prepare plans and get ready for work.

Lord Rhondda: We have already got a certain amount of useful information, but we shall want some further information.

Mr. Smethurst: You sent a circular out some time ago asking the number of houses and what need there was for more. That was not dealt with seriously in some areas. My own Council, for instance, answered it very cursorily.

Lord Rhondda: Well, anyhow we recognise that circumstances have very much altered since then, and we have to state very definitely in some form or another what assistance is to be rendered to the local authorities. Of course we do not want to put any undue work on the staffs of the local authorities, who have done splendidly during the War. Before we pass to the question of Designs and Plans for houses, I should like to ask Mr. Straker a question as to the condition of colliery houses in Northumberland and Durham. I understand there is a great shortage there. What are the possibilities of having a large number of houses built in those districts?

*** The figures referred to by Mr. Shawcross are as follows:—**

	Houses
To replace insanitary dwellings	**500,000**
To overtake deficient building during the last 7 years —say 4 years at 30,000 shortage, and 3 years at 70,000 shortage	**330,000**
Houses required yearly to provide for the increase of the working class population—10 years at 80,000	**800,000**
Total	**1,630,000**

or 163,000 houses yearly for 10 years,

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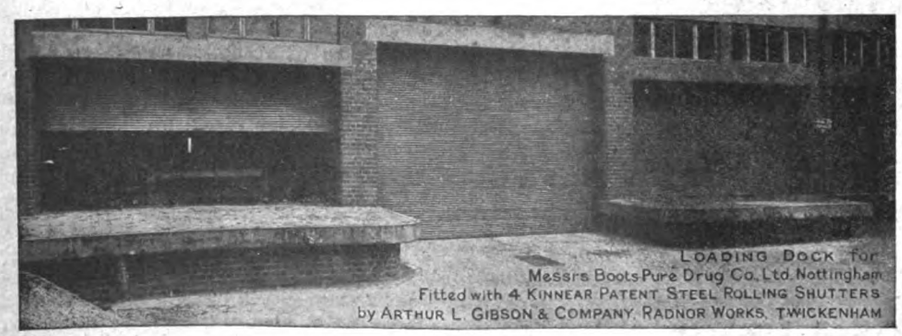
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Mr. Straker: I know that the colliery owners do not care about building any more houses. Most of the houses are owned by the colliery owners, and most of the workmen receive part of their wages in the form of a house to live in. The collieries are mostly isolated from any other industry, and it is difficult to get private enterprise to do anything towards supplying the lack of houses. That is one of the great hindrances. And the houses, too, are not of the best class, though the newer ones I daresay compare favourably with others; they consist of a scullery-kitchen, a living room, and two bedrooms upstairs. That is the usual type of new house. Many of the older houses just have one room which serves for everything, with an attic overhead which is in some cases approached by a step-ladder and not by a staircase. As long as these houses are there it will be difficult to get others to come into competition with them. Even if the free-house system was abolished, as some have suggested, that would not remove the house, nor improve it.

Lord Rhondda: What would be the rent of the newer houses just prior to the War?

Mr. Straker: Six shillings to seven shillings a week—three or four rooms—that is the usual thing.

Lord Rhondda: Are any of the houses built on the garden-city plan?

Mr. Straker: No. Of course colliery houses outside, in the country districts, nearly all have large gardens.

Lord Rhondda: Would you regard it as a function of a colliery company starting a new concern to provide houses for its employees?

Mr. Straker: They are bound to provide houses, otherwise they could not get the workmen. There is nobody else to put them up. That is the difficulty. If the pit stopped, then the houses would be abolished.

Mr. Aldridge: Mr. Walsh might answer questions in regard to the need for raising the whole standard of the type of house.

Mr. Walsh: The type of house, my Lord, provided to-day is totally inadequate for the average working man. It is so small that it seems specially designed to limit his family to as small a number as possible, and when you consider that the cry to-day is for increased families we think a better kind of house should be provided. There are ten of us in my family, and I am living in the best house I can afford; it has three bedrooms, and you can realise how inadequate that is. But I cannot possibly get another house within the rent I can afford to pay. I agree with the opinion expressed at our recent conference at Oxford, that three bedrooms is the least number that should be provided if the citizen of the future is to be brought up in anything like decency. We talk so much of real education commencing and ending with the home. Well, if we really mean business, we must provide the right kind of home. We do feel that the suggestion made in our proposal should be acted on—that designs of houses should be submitted to a committee representing every kind of influence that is likely to have anything to do with houses, including representatives of the tenants—because the tenants themselves have so far never been considered—and that there will be a real attempt to do something in this way for the working class.

Lord Rhondda: It is a very novel proposal, that the State should allow £150,000 for designs.

Mr. Aldridge: I think, my Lord, it would be tremendously popular. The architects were inclined to criticise various terms, but apart from details the unanimous view is that it will produce keenness in carrying out new departures and securing a better class of workmen's house.

Mr. Shawcross: At present it is almost hopeless to expect the staffs of the local authorities to design houses. This scheme was taken up by us because we thought that under it the surveyor or architect of the local authority could be relieved of much work. He would have designs to choose from, and would supervise the carrying out of the actual work of building.

Lord Rhondda: Mr. Aldridge says it would be popular, but it seems quite possible that for every architect you please you may offend twenty. As regards the question of standardisation, is it possible to standardise anything more than doors and windows?

A Member: Yes, staircases and stoves, and things of that kind.

(To be concluded.)

Correspondence

[The Editor will not be responsible for the opinions expressed by Correspondents.]

Coal Concreted from Ashes.

SIR,—I was interested in an article in last week's paper re coal concreted from ashes, &c. Can you please refer me to any method by which we can convert "sawdust" into a fuel? We have a sawyard and might make bricquettes of the waste sawdust if you could kindly let me know how it is done.—Yours, &c.,

A. MATTHEWS.

Great Southern Hotel, Lakes of Killarney:
June 9, 1917.

BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders, the address is, as a rule, local.)

ENGLAND.

BEDFORDSHIRE.

Bedford.—No. 92 Midland Road: additions. Mr. H. Young, architect, 35 Maitland Street.

CHESHIRE.

Chester.—Workhouse, Boughton: alterations. Mr. H. Beswick, architect, Newgate Street.

DURHAM.

Gateshead.—Proposed Carnegie Library (£15,000).

GLOUCESTERSHIRE.

Cirencester.—Premises for Colonel R. C. Master. Premises for Mr. E. C. Sewell.

Hanham.—Proposed picture house for Messrs. Merry & Crossfield.

LANCASHIRE.

Blackpool.—Proposed Holy Trinity Sunday schools, South Shore.

Rochdale.—Proposed St. Mary's Sunday School, Park Lane, Wardleworth.

NORTHAMPTONSHIRE.

Northampton.—Store, St. James' Park Road, for Messrs. Dover, Ltd.

SCOTLAND.

Aberdeen.—Nos. 12 and 14 St. Nicholas Street: alterations. Messrs. Kelly & Nicol, architects, 367 Union Street.

No. 40 Union Street: alterations for Messrs. Stead & Simpson, Ltd.

No. 199 Union Street: alterations. Mr. G. B. Mitchell, architect, 148 Union Street.

Nos. 69-75 Powis Terrace: alterations. Mr. G. Watt, F.R.I.B.A., architect, 17 Union Terrace; also

No. 33 Summerfield Terrace: alterations.

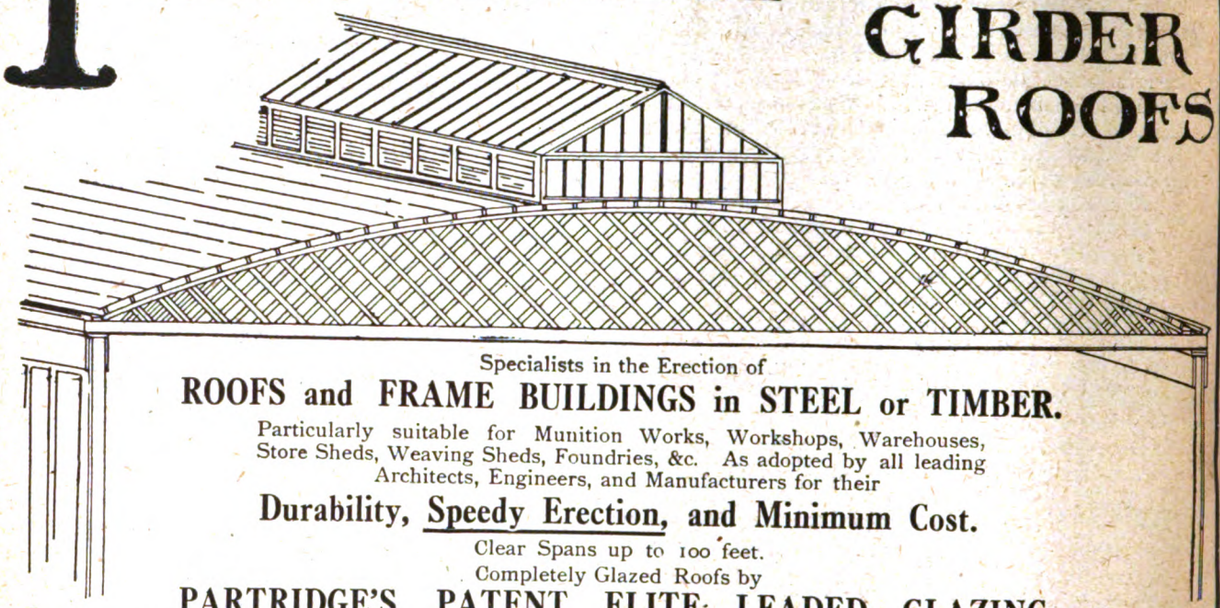
Ashgrove Engineering Works, Ashgrove Road: additions. Messrs. D. & J. R. M'Millan, F.R.I.B.A., architects, 105 Crown Street.

Donside Works, Tillydrone Road: additions for the Donside Paper Company. Messrs. Jenkins & Marr, architects, 16 Bridge Street.

Dunfermline.—Tenement dwellings, Rosyth (£30,000). Proposed two Board schools.

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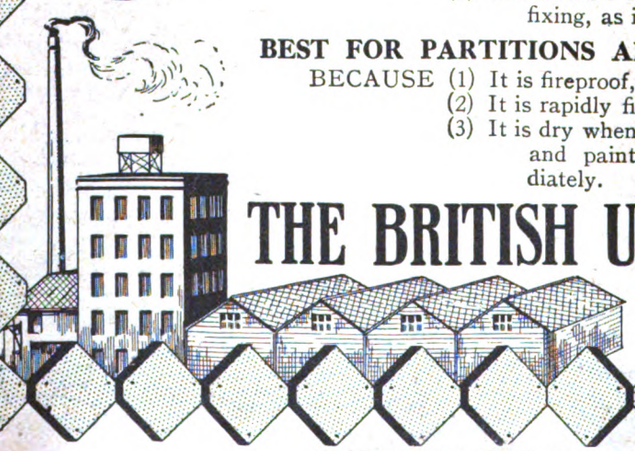
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THE ARCHITECT

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FORTHCOMING EVENTS.

Monday, June 25.

Royal Institute of British Architects: Presentation of Royal Gold Medal.

Thursday, June 28.

Institution of Municipal and County Engineers: Annual General Meeting (three days), at the Town Hall, Hastings, commencing at 10.30 A.M.

Saturday, June 30.

Edinburgh Architectural Association: Annual Excursion to Dunfermline.

Wednesday, July 4.

Royal Archæological Institute:

Friday, July 6.

London Society at the Hall of the Society of Arts: Lecture entitled "London Bridges," by Mr. W. D. Caröe, M.A., F.S.A., F.R.I.B.A., at 5 P.M.

A PARLIAMENT FOR THE BUILDING TRADE.

THE bold and public-spirited proposition for co-operation between employers and employed in the building trade put forward in the memorandum addressed to the National Federation of Building Trades Employers of Great Britain and Ireland by the National Associated Building Trades Council, which suggests the establishment of a Builders' National Industrial Parliament, is gratifying evidence of the soundness of judgment of the great majority of British working men, and of their patriotic readiness to assist in the promotion of a spirit of friendship rather than of suspicion and animosity between class and class, in the realisation of the truth that the best interest of the individual is to be found in the welfare of the community.

The Council recognise that the interests of employers and employed are in many respects opposed, but that they nevertheless have a common interest in promoting the efficiency and status of the service in which they are engaged, and in advancing the well-being of its personnel. The proposed Parliament, representative of the trade unions and the employers' associations, which would focus their combined energies upon the continuous and progressive improvement of the building industry, would have for its objects the promotion of that improvement, the realisation of the organic unity of the industry as a great national service, and the advancement of the well being and status of all connected with it.

It is not proposed that the Parliament should be concerned with the adjustment of differences or the settlement of disputes, the already existing machinery being left to deal with these. Thus the Parliament would consider only those matters of common interest to both employers and employed, leaving out of its purview any apparently opposed interests, so that its function would be constructive, and nothing but constructive.

Amongst the matters with which it is suggested the Parliament might rightly be concerned would be (1) The regularisation of wages by the provision of a graduated scale of minimum rates designed to maintain real wages as nearly as possible on a level throughout the country. Subsequent advances to be on a national basis; (2) Prevention of unemployment, (*a*) by the acquisition of a fuller participation in the control of the Board of Trade Labour Exchanges and the supplementing of their work by improved organisation special to the building trade for the decasualisation of labour, and (*b*) by minimising the fluctuation of trade by intelligent anticipation and the augmentation of demand in slack periods, in co-operation with the National Housing and Town Planning Council and the Local Government Board; (3) Employment of partially disabled soldiers, by regulating the employment of partially disabled soldiers and ensuring that the pensions granted by the nation shall not become the means of reducing the standard rate of wages; (4) The arrangement for adequate technical training for the members of the industry, the improvement of processes, design and standards of workmanship, apprenticeship, research, and the regulation of the conditions of entry into the trade; (5) The issue of authoritative information upon all matters whereon it is deemed desirable that leaders of public opinion, the Press, and the general public should have exact information; (6) The provision of a Clearing House for ideas, and the investigation, in conjunction with experts, of every suggested line of improvement, including, for example, such questions as Industrial control and status of labour; Scientific management and increase of output; Welfare methods; Closer association between commercial and æsthetic requirements.

The method of procedure suggested by the Council is that the proposed Parliament should set up Committees of Inquiry (with power to co-opt experts), to investigate and report on each of the foregoing matters, and should deal with their recommendations as and when presented. All proposals before the Parliament would be fully ventilated and discussed through the medium of Joint District Boards, Works Committees, the Trade Papers, and the general Press, in order that the opinion of the members of the building trade, and of the general public thereon, might be accurately gauged before final decisions were taken.

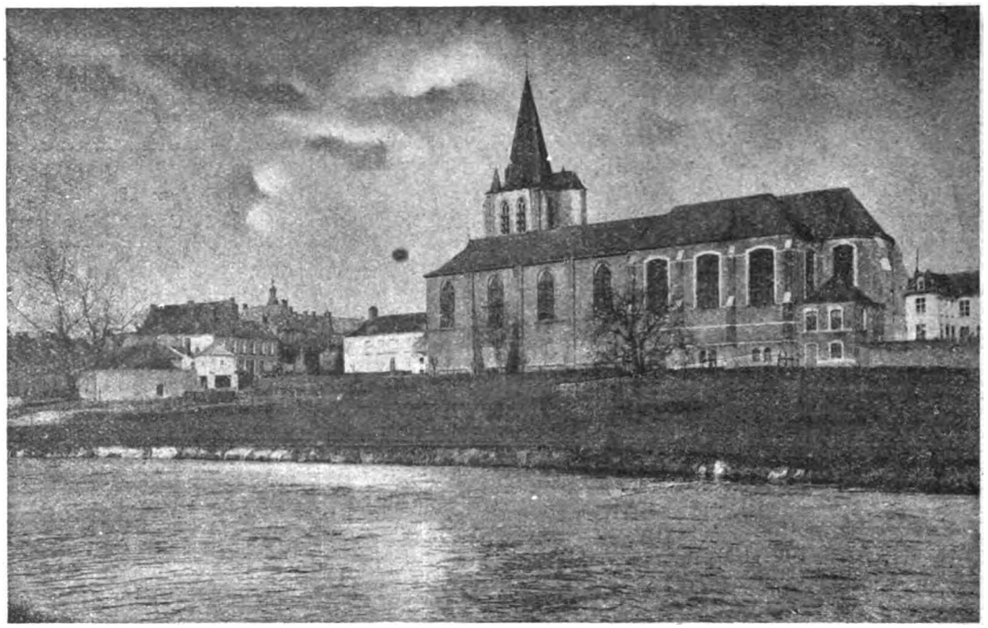
The result hoped for by the Council would be the progressive development of two codes:—(*a*) A compulsory code, probably involving legal sanction of agreed minimum standards, and (*b*) A voluntary code, built up from the recommendations of the Improvements Committee for the voluntary, and perhaps experimental, adoption of progressive employers. This latter would thus embody all proposals of which the principle was generally approved, but for which it was not yet possible or advisable to ask for compulsory powers. It would greatly stimulate the advance of public opinion on matters of industrial and social improvement.

Legal sanction for the compulsory code might be accomplished by a special Act of Parliament, giving power to the Board of Trade, or a Ministry of Industry, to ratify the decisions of the Industrial Parliament, and apply them to the whole of the industry, subject to adequate safeguards for the interests of consumers.

The proposed Industrial Parliament would meet the need at present existing for some recognised body with which the Government could communicate in regard to matters concerning the building industry as a whole—employers and employed.

In respect of the constitution of the proposed Parliament it is suggested that, pending the establishment of more elaborate electoral machinery, twenty members should be appointed by the National Federation of Building Trades Employers of Great Britain and Ireland, and

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THE CHURCH, WARNETON.

twenty members by the National Associated Building Trades Council, the chairman to be chosen by ballot by the whole assembly and his position to be independent and advisory only, without a casting vote.

In order to secure a basis of absolute confidence, it is suggested that rules be drawn up to ensure that the number of employers' representatives and operatives' representatives voting upon a measure shall always be equal.

Auxiliary assemblies are also suggested in the form of (*a*) Joint District Boards, which would be set up by local units of the two organisations for the discussion of the proposals of the Industrial Parliament and the furnishing of local facts and statistics as required. They would also perform a valuable service by preparing and forwarding suggestions for consideration. (*b*) Works Committees, which would be small groups representing management and labour, set up for the same purpose in particular shops.

Though undoubtedly details would require careful consideration in conference between representatives of employers and employed, we feel that the National Associated Building Trades Council is to be heartily congratulated upon the constructive statesmanship of the scheme put forward. Although the promoters are cautiously careful, and with good reason, to exclude from the functions of the Builders' National Industrial Parliament any concern with differences and disputes, it cannot be doubted that the atmosphere of constructive co-operation would tend to efface the old spirit of antagonism and suspicion in respect of opposed interests at the same time that it would promote an increase in efficiency and output. It would raise the whole status of the building industry and give to its members a new pride in their work as a splendid public service. It would tend to break down the barriers that have so long confined and impoverished the national life, and would promote the development of a real team spirit akin to that which actuated the mediæval trade guilds.

Another important result would be that whereas industrial legislation has hitherto always been imposed from without, often without adequate comprehension of the conditions and interests of the industries affected, and hence has encountered strenuous opposition on the part of organisations concerned to defend what they held to be their interests, the process would now be reversed. The industry itself would first agree its conditions and would then submit them to the Government and the Imperial Parliament for approval and sanction, thus relieving the House of Commons of an immense amount of highly controversial work.'

There can be little doubt that the position of the building trade as one of the largest and most important of the staple trades would cause the successful establishment of such an Industrial Parliament as is proposed to affect profoundly the other great industries of the nation, and to inaugurate an era of mutual respect, good understanding, and co-operation between employers and employed throughout the country.

NOTES AND COMMENTS.

WHILST it may seem a pity from the point of view of housing reform that Lord Rhondda should quit the Local Government Board after having been so well instructed by numerous deputations from various associations, it may be believed that he will leave behind him those who will be well able to put before his successor the views, sometimes conflicting, already advanced, together with a considered judgment as to their respective merit. Indeed, we believe that the Government's housing policy is already well advanced towards settlement. It is regrettable that the views put before Lord Rhondda by the various deputations he has so patiently heard have been sectional and one-sided rather than impartial and broad minded. On two points, indeed, there has been general agreement; first, that there will be, immediately the war ends, an urgent need for, in round figures, half a million additional houses of a low rental value; second, that the financial assistance of the State towards the building of those houses is imperative. As to who should be the recipients and administrators of that assistance there are diverse views. Earnest advocates have advanced the claims of local authorities, of public utility societies, and of private enterprise—an euphemism for the speculative builders. The latest deputation, that of the Workers' National Housing Council, received by Lord Rhondda on Tuesday in last week, went so far as to urge not only that the Government should give financial assistance to local authorities, and that compulsory measures should be adopted to enforce the preparation of housing schemes, but that private persons or limited liability companies should not be assisted with public money. Objection was also expressed to the erection of cheap and small dwellings.

Lord Rhondda, in reply, said that as he was not a

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member of the Cabinet he could not tell what the attitude of the Government was on the subject, but the Local Government Board fully realised its importance. He agreed with the deputation that healthy homes and happy conditions were essential to the public welfare, and he would use all the influence he had to achieve these ends. Candidly he had sympathy with most of the proposals put forward, and favoured a conference of experts to advise him on a matter which was so highly important as this. An enormous number of houses, he continued, would have to be erected, not by private interest alone, but also with Government assistance in some form or another. The Government, being responsible for the interest on thousands of millions of money, must carefully consider before taking on new obligations, but housing must be assisted. Schemes could meanwhile be got ready for immediate use after the war, when half a million houses would be required. He was going to systematically inquire from local authorities what the shortage was and to what extent they were prepared to tender help.

To an unprejudiced observer it must we think be evident that there is room for each of the agencies advocated, ex parte, by their apostles. Even the speculative builder is a useful public servant. He, by close personal attention and, frequently, actual participation in building, as well as by thorough knowledge of markets, can build for the community more cheaply than others. Public utility societies favour particularly the development of garden city principles. Local authorities alone can deal with the provision of "houses" at non-economic rents which neither of the other groups care to touch, but which with our present standards of housing and of wages are essential to the welfare of the community.

Well expressed views on the housing problem were put before the Liverpool Rotary Club at their meeting last week by Mr. T. Howarth, of Rochdale. He emphasised the present need for preparing housing schemes to be put into operation after the war, and among the points he suggested should be taken into consideration were included town planning, options on land with a view to it being leased out to builders, a wise and determined attempt to secure the provision of main arterial roads linking up towns and the country, and the revision of building by-laws. Pressure, he urged, should be brought to bear on county councils and owners of country estates to deal with the housing problem in rural areas, while as to the question of tied cottages, he advocated the payment of a minimum wage which would enable those employed on the land to pay an economic rent. All of them, he said, needed to bend their energies to the common good and realise that the abnormal conditions now prevailing were such that private enterprise for the time being and immediately after the war would be unable to cope with this vast problem. But as private enterprise had in the past supplied 97 per cent. of the housing of this country he had no fear that it would not have its share of the work of reconstruction.

In our review of the ecclesiastical work in the Architectural Room of the present Royal Academy show we drew attention to the perspective drawing of the completed cathedral of St. Mary, Edinburgh. The dedication of the north-western spire was the occasion of impressive services held in the cathedral on Tuesday in last week. The two spires commemorate the names of the sisters, Barbara and Mary Walker, through whose bequest the cathedral was founded, and the "Mary" spire, which was solemnly dedicated on the 12th inst., is the second to be finished, the other, the "Barbara" spire, having been dedicated two years ago.

Two recently acquired works of interest have just been placed on view in the entrance hall of the National Gallery. Gentile Bellini's world-famed "Sultan Mohammed II." is an autograph replica of the no longer extant picture

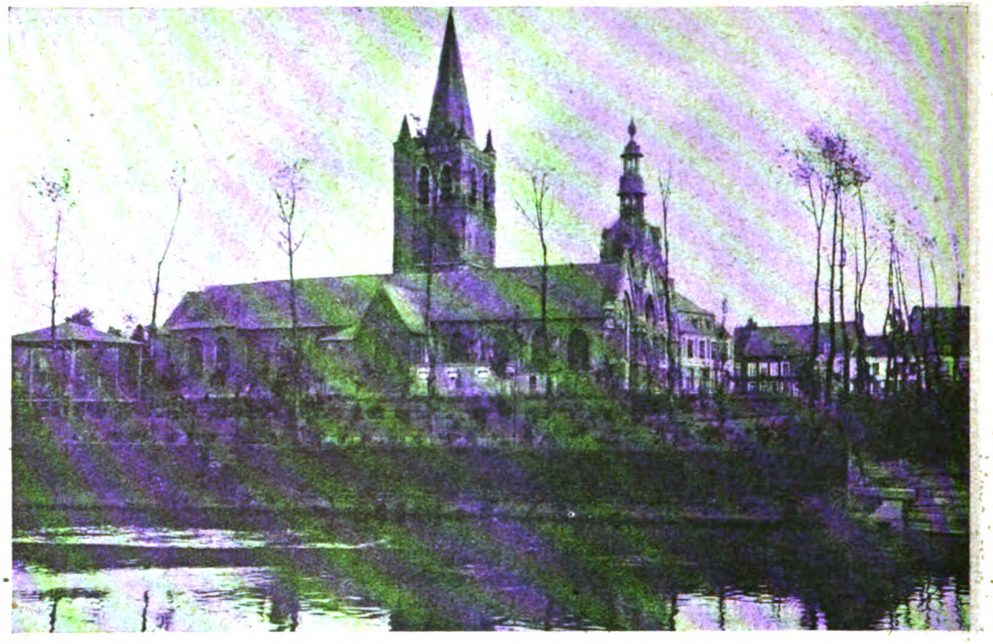


THE CHURCH, WARNETON.

painted at Constantinople and dated November 25, 1480. The great Ottoman conqueror, as will be recalled, made a request for the best painter in Venice to be sent to him, and choice fell on this the elder son of Jacopo Bellini. The picture is said to have cost the late Sir Henry Layard some £7 only. To-day the rarity is valuable no less æsthetically than historically. On the ground that it is not a "portrait" within the meaning of the Layard will, the Court handed it with other pictures to the nation. The other new exhibit, showing a figure of a flying angel, is by Francesco Pesillino, and was bequeathed by the Countess Brownlow. It forms part of the now dismembered altar piece of 1457, the central group of which, representing "The Trinity," was in 1863 purchased by the National Gallery at 2,000 guineas from the Davenport Bromley collection.

Members of the Hunter Archæological Society last week visited Broom Hall, Sheffield, when Mr. J. R. Wigfull, A.R.I.B.A., gave a short description of the building, in which he pointed out that a place known as Brom or Broom was found in very early documents in connection with Sheffield, but it was only in the latter part of the fifteenth century that any family could be directly associated with the place. The old Hall is now divided into three houses. On the north side of the house there are portions of half-timber, probably dating from the end of the fifteenth century which was no doubt the work of one of the Wickersley family, who lived there at that period. In other parts of the house are ornamental plaster work and panelling characteristic of the early part of the seventeenth century, and probably erected during the lifetime of William Jessop. He died in 1630. Very similar ornamentation is to be found in houses of the same period in other parts of Sheffield. Very large alterations appear to have been made in the house in the eighteenth century, and more modern alterations are also evident. The

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PUBLIC GARDEN, COMINES.

eastern portion of the building contains a beautiful doorway with a fanlight after the style introduced by the Adam brothers.

At the annual meeting of the Durham and Northumberland Archæological Society on the 13th inst., a strong protest against some proposed work at Durham Cathedral was made by the Rev. Dr. Greenwell, a veteran antiquary of 97 years of age, and president of the Society, who said he hoped that to a certain extent an end had been reached of useless expenditure over Durham Cathedral, but regretted there was a project in hand which he could not but regard as very unwise. That was to place statues in the niches of the Neville Screen. In the early days of Dean Lake a similar proposal was made, but the designs were absolutely absurd, and he wrote to Dean Lake urging his objections. Dean Lake consulted very eminent ecclesiastical authorities, who, although they did not agree with him (Dr. Greenwell), could not answer him. As to the present proposal, he thought it was a very dangerous procedure. The chances were that the screen would suffer much from the alterations, and he could not see why people could not let well alone. If the Dean and Chapter wanted to spend money on the cathedral, they could undertake the restoration of the north porch. They might also restore the wood work—still in existence—around the shrine of St. Cuthbert—wood work which was wrongly and stupidly removed at a former restoration, with the ridiculous idea of restoring the church to its normal Norman simplicity. But all kinds of idiotic alterations were then made. The magnificent fifteenth century screen was destroyed, and the wood work of Cardinal Langley's date in the Galilee was swept away. They now had a screen between the chancel and the nave which was utterly unworthy of the building, an expensive pulpit, which was a hideous thing, as was also the Pelican lectern. All these things could be altered. He had strong views of what should be done at the cathedral, but his seemed a voice crying in the wilderness.

The exact location for the proposed Mid-Scotland Ship Canal seems to be a matter on which considerable diversity of opinion exists. The Mid-Scotland Ship Canal National Association advocates the direct route twenty-nine miles long, at sea-level, through the richest industrial valley in the country, and touching the boundary of Glasgow. But a strongly supported opinion exists amongst the members of the Glasgow Chamber of Commerce that commercially the canal would be of little value, and hence the choice between the direct route and that by Loch Lomond and Loch Long, 60 miles long, should be determined purely by strategical considerations, since the value of the canal to the country as a whole would lie principally in the provision of a back door to Rosyth.

In the article on Armentières, which appeared in "The Architect" last week, a description is given of a "wooden" church. This was a printer's error for "modern." The church is wooden only in design, not in actual material of construction.

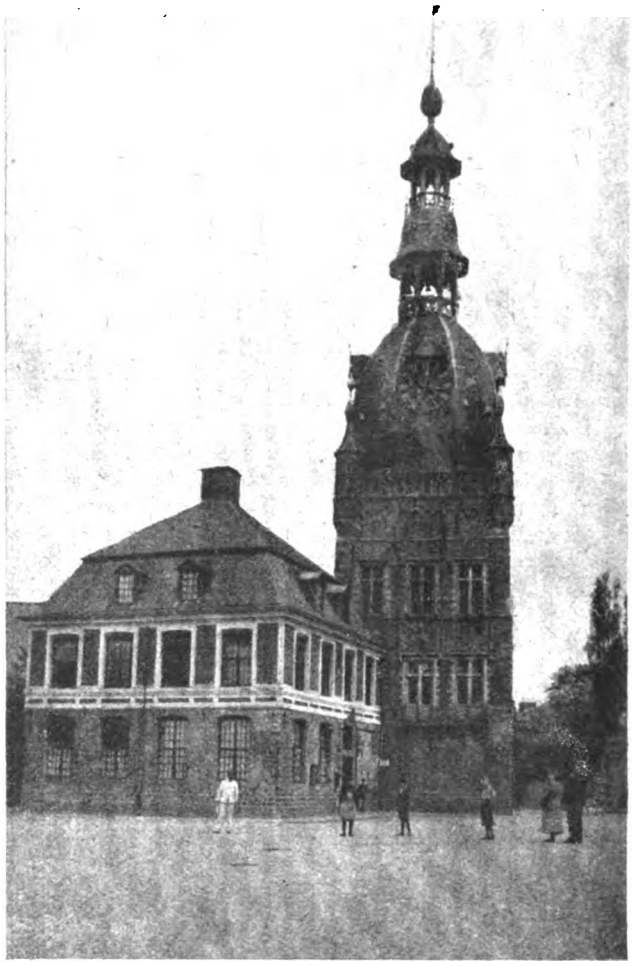
Inquiries made by Mr. A. W. Shelton and summarised by him in the "Financial Review of Reviews" show that, taken as a whole, there was in the seventy most populous towns in the United Kingdom no scarcity of houses until 1910, the year of the Finance Act. During the five years before the passing of the Act the average number of houses erected in these towns, which contain nearly one-third of the entire population, was 34,000. Since then there has been a sharply progressive decline. In the year ending March 31, 1911, the number fell to 23,315; and, in successive years, to 18,880, 17,854, 17,207, and 10,398. Yet something like 114,000 new houses are needed every year in the whole of the country, and 32,176 in these seventy towns. There is no mistaking the significance of such figures, and in face of them we need pay no attention to the fable that the diminution of supply had begun before the passing of the Finance Act of 1910.

The names of the Commissioners appointed to inquire into and report upon industrial unrest are as follows:—(1) North-East Coast.—Sir Thomas Munro (Chairman), Mr. P. Bright (employers' representative), and Mr. H. Davies (employees' representative); (2) North-West Coast.—His Honour Judge Parry, Mr. John Smethurst, and Mr. J. N. Clynes, M.P.; (3) Yorks and East Midlands.—Sir George Croydon Marks, M.P., Sir Maurice Levy, M.P., and Mr. J. J. Mallon; (4) West Midlands.—Major J. W. Hills, M.P., Mr. J. W. White,

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THE BELFRY, COMINES.



RUE D'HURLUPIN, COMINES.

and Mr. J. W. Ogden, M.P.; (5) London and South-East.—His Honour Judge O'Connor, Mr. Allan M. Smith, and Mr. J. Voce; (6) South-West.—Mr. W. W. Mackenzie, K.C., Sir Alfred Booth, and Mr. T. Chambers; (7) Wales, including Monmouthshire.—Mr. Lleufer Thomas, Mr. Thomas Evans, and Mr. Vernon Hartshorn; and (8) Scotland.—Sheriff T. A. Fyfe, Mr. Noel E. Peck, and Mr. A. G. Cameron. Mr. G. M. Hodgson, of the offices of the War Cabinet, has been appointed secretary to the Commission.

The Commissioners for the London and South-Eastern Division are now prepared to hear evidence from representatives of departments and associations concerned on the causes of industrial unrest, and also from unofficial sources. Any person desiring to lay his views before the Commissioners for this area should write to the local secretary, Mr. Joseph Chase, 4 Sackville Street, Piccadilly, W. 1, stating in writing the points to which it is desired to draw the Commissioners' attention. Questions of principle alone should be submitted to the Commissioners, who cannot undertake to investigate individual complaints.

ILLUSTRATIONS.

OFFICE BUILDING ERECTED FOR A FACTORY.

THIS building has been erected as a permanent building in connection with other works. It is not at present advisable to give publicity to the locality of the work, or any further details in connection with the same. Messrs. Holloway Bros. Ltd., of Grosvenor Road, S.W., were the contractors.

NEW SMOKING ROOM, FLEET STREET, FOR THE UNITED NEWSPAPERS, LTD.

THIS room has been completed in old materials, and the effect has been to generally set up a contrast with the more severe lines necessary in the rest of the building. The bricks are 5 × 1¼, old Dutch bricks, and the timbering is built in old ship timbers. It is intended to furnish the room with old furniture in harmony with the rest of the work. The contractors were Messrs. Arthur Vigor, Ltd., of 40 Knightsbridge, S.W.

"THE COPPICE," WEYBRIDGE.

THIS view is taken from one of the stone gardens, showing the garden entrance of the house and one of the garden fronts. The house has been designed with old materials and the whole object has been to produce a house on the lines of the old English farmhouse type. The roofs and brickwork are mostly composed of old tiles and bricks. The house was erected by Mr. W. G. Tarrant, contractor, of Byfleet, Surrey.

ARCH OF TITUS, ROME.

WE this week reproduce Plate IV. from Taylor & Cresy's "Rome."

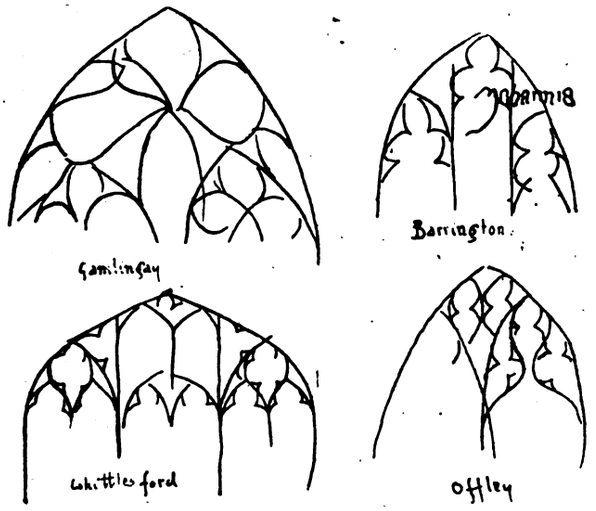
THE estate of Temple Hall, near Coldingham, which belonged to the late Mr. Fitzroy Bell, advocate, has been acquired by Messrs. Tom & James Speedy, estate agents, Edinburgh, for a client. The district is rich in historical associations and antiquarian relics. The old Priory of Coldingham, founded in 1098 by Edgar, King of Scots (of which the choir is now the parish church), the ruins of the ancient church of St. Ebba, the remains of Roman works, and many other objects of archæological interest exist in the immediate neighbourhood.

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MEDIÆVAL MASONS' MARKS AND GRAFFITI.

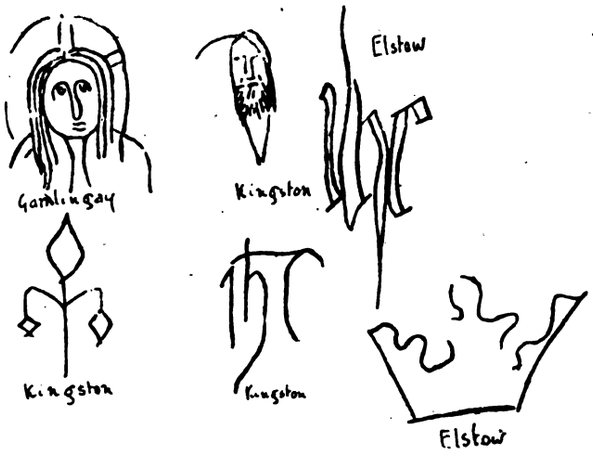
AT a meeting of the Royal Archæological Institute of Great Britain and Ireland, held in the apartments of the Society of Antiquaries, Burlington House, Piccadilly, on Wednesday, May 2, Mr. G. G. Coulton, M.A., gave an address entitled "Some Notes on Mediæval Masons' Marks and Graffiti," which was illustrated with lantern views.

Mr. Coulton, at the outset, pleaded for the necessity of more documents in mediæval history, and especially in the history of mediæval art. Let them have theories by all means, as many as possible, and as much discussion as possible, but let them try to base their theories upon facts, upon documentary facts. Let them remember that the harvest indeed was great, and the labourers only few, in the mediæval field. Therefore he had come to plead for a particular class of documents, for, after all, documents were not only on parchment, and on paper, but on stone, and the documents he was going to speak about were stone documents, one portion of which seemed to him to have been very unduly neglected in a scientific sense, and the other almost totally neglected. So far as his experience went, what was to be read in print on the subject of masons' marks and graffiti was almost wholly to be found



in catalogues of them, with a certain amount of application sometimes, and a certain amount of theory. What he pleaded for was something more complete, especially now that County Associations were doing so much to make photographic and similar registers, each of its own district. They wanted something systematic, some synthesis of the millions, they might say, of masons' marks which could be found in a large number of churches, and which a considerable number of people did not notice at all. Speaking first of masons' marks at Ludlow Church, Mr. Coulton mentioned that a heated controversy between two architects in reference to a curious arch was at once solved by a mason who was working on the tower following the masons' marks. A similar problem was presented at Great Barfield Church, Essex. Most of them probably knew the fine screen there, and he thought most people would put that screen at something like fifty years earlier than the rest of the church. Yet they had the distinctive mark of the same mason on both. Why were masons' marks so extremely common in big churches of Norman times, and, again, in big churches of the fifteenth century while so relatively rare, even in large churches, in between? For instance, they were extremely rare by comparison in the thirteenth-century work, on the pillars especially. A typical Norman building in a great Norman church—one of the piers at Ely Cathedral—contained seventy-one marks. That pier represented the work of twenty-one to twenty-eight masons, because, he supposed, everybody was agreed now that, with very few exceptions, the mason's mark was his voucher, his sign-manual.

A mason had to vouch at the end of the week for so many feet of stone, and he vouched them all by his mark. There was much less exactitude in Norman times than in later times. In later times the marks were accurately and neatly cut, but in Norman times very differently. As they knew, the work was done by half-skilled labour, and more quickly than it ought to have been done. He showed a series of Norman marks at Gloucester Cathedral, more carefully cut, more elaborate, less rudimentary in themselves, and there, it seemed to him, came the first important problem in the scientific study of masons' marks. Why was it that finding so many they did not find all? Why were there blank stones? Of course, the obvious common-sense answer was that a mason might mark his work on the back or joint, instead of on the face. But they might look through all the broken stone in any ruin, and they would not find a single voucher mark except on the face. It did not disfigure the face from the point of view of the mason, as the first thing they did was to whitewash and plaster the church when they had finished it. In the north triforium at Gloucester Cathedral the marks were cut so deeply that rarely one was missed, but this regularity of marking was not always found. As an instance to the contrary he mentioned the Infirmary Chapel at Lewes, whch was excavated by Sir William Pope about fifteen or twenty years ago. Certain of the stones were magnificently trimmed and carved, and were so hard and fine that where they had been broken up, and built into walls in other parts of Lewes, the masons' marks upon them could still be traced, after all these centuries. Under the plaster the surface was almost as smooth as the plaster, but they would find that a number of the stones had evidently never had a scratch upon them. They knew from mediæval accounts that the workmen were a fluctuating band. If they followed any mediæval building accounts they would see that a certain number of people were paid wages week by week for a great number of years, and that certain others came on more or less casually for a short time, and went off again. His theory was that the permanent men did not need a voucher. If a man had been in their employment ten years, and they knew he would do his work regularly, they would not give him the trouble to vouch for his work, though he might do it as a matter of habit. But as regarded the comparatively wandering man they would look carefully to the amount of stone he did each week, and he had to vouch it. The strongest piece of evidence he had heard against that was that in Strasburg Cathedral the same mark appeared on two stones widely separated, and between which there was an interval of something like eighty years. He (Mr. Coulton) had not had time to verify that objection, but it seemed to him there were two flaws in it. The first was that two masons constantly had the same mark, and they had to look at the marks very carefully to see if in size, shape, and so on, they corresponded exactly, before they were sure the marks were made by the same mason. The second objection was that they knew as a matter of fact that stone once cut often lay about for years,



perhaps generations, before it was built in. King's College, Cambridge, was a very obvious instance. Proceeding to give two exceptional kinds of masons' marks, Mr. Coulton said the first was in the old St. Mary's Church at Eastbourne, where a large number of the stones—something

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like two-thirds—had fish marks on them. There had been much discussion about these marks, and an attempt to import all kinds of mystic causes into them. In his view the simplest explanation was that the marks were those of one particular mason who did nearly all the work, and who enjoyed vouching his work in that way, whether or not he was officially compelled to do so. If that man did all the stone marked with fishes, probably only two masons were at work, and they would think that the mason who did most of the work would not have needed to vouch it. As a matter of fact the fish occurred as a mason's mark at Poitiers in France, and at Bristol and at Canterbury. The other curious kind of mark—he found no instance at all comparable to it—was the "Dammarkn" at the P. de Calais. It was late twelfth or early thirteenth century work, beautiful red sandstone, and all the marks apparently had a numerical signification and ran to a very great extent in strata. It was curious each mason should have been competent to do his lot so exactly, with the same fitness that it might be built into the same layer, but one or other of the two seemed the necessary conclusion. Mr. Coulton next exhibited diagrams which, he said, showed the extent to which, it seemed to him, the systematic study of masons' marks might be utilised. In one



of Ely Octagon (north-westwards) they saw, roughly, that stones were built in as the men worked, and as the work progressed a good many of the men went out. At the top was a particular mark, and then there were pillars with the numbers 1, 2, 3, showing that one mason did one stone, another two, and another three. The table showed a gradual dropping out of certain men, and their replacement by others. These points were more clearly marked in the case of St. Nicholas, Lynn, which could not have been begun long before 1410, and which, as they knew, was finished before 1418. Therefore it was built fairly rapidly, and, as it were, at a single stroke. Taking the walls and pillars they would find that one mason had thirty-five stones, and when they came to the pillars they found this same mason still kept up his high average, having twenty-five stones. Another mason also had a large number, but the great majority of those who were working on the tower part dropped out in the other part. A certain mark at St. Nicholas, Lynn, he had recognised at East Winch, and possibly after St. Nicholas was built this mason passed on to East Winch. At St. Nicholas the bulk of one mason's work was done in the earlier part; another did comparatively little in the earlier part but went on longer. Among the marks were "K" and "W" turned upside down.

A third diagram showed a tabulation of work at Melrose Abbey, which lent itself to more elaborate classification, but was less exhaustive, he was afraid, than the others, because there the weather had obliterated a great deal. As the work progressed towards the east they were able to trace how the men worked. Nearly all the men who were working most in the earlier stage dropped out gradually, and then presently an entirely fresh lot of men, who had not been traced at all previously, came in and worked in the later stage. In the Lady chapel at Gloucester Cathedral, on the reredos, they would find on each panel a very rough sketch of a human figure and the name of some saint. That was to mark into which panels the saints were to be put. The peculiarity of these Gloucester inscriptions was that they were not scratched as the graffiti with the point of a knife, but evidently with a flat tool, about as broad as a narrow chisel. These masons were not accustomed to writing, and they formed the letters very rudely. The masons sometimes used the smooth surface of the stone for sketching, and he instanced an oak leaf and crown and other sketches at St. Albans, where there were a considerable number. There was no doubt when they had a real artist at work. He also mentioned other interesting examples of masons' graffiti at Sion Valais, Offley Church, Herts, Little Dunmow, and other places.

In the course of subsequent discussion the Chairman (Sir Henry Howorth) said Mr. Coulton had virtually tapped an entirely new barrel of archæological wine. It seemed to him the explanation of the marks that had been given by Mr. Coulton was most rational, and most likely to be the true one. He (Sir Henry), however, wondered, in some cases which were known to him, whether these were masons' marks at all, and whether they were not the marks of the men who supplied the stone for the buildings, to show that the quantity had been delivered.

A hearty vote of thanks was accorded Mr. Coulton for his address.

NATIONAL HOUSING AND TOWN PLANNING COUNCIL'S DEPUTATION TO THE PRESIDENT OF THE LOCAL GOVERNMENT BOARD.

THE report of the deputation to Lord Rhondda, which appeared in our columns on the 8th and 15th inst., is here concluded:—

Mr. Shawcross: I do not think the putting of brains into the designs necessarily means increased cost; I think the greatest beauty is often to be found in the simplest forms. I think these competitions will be very valuable.

Sir Horace Monro: I doubt whether it is really necessary to spend £150,000 on designs. Many designs have been produced within the last ten years, since the Town Planning movement started, and I should think the best brains have already been put into the designing of cottages. And it must be remembered that they must be built, especially in these times, as cheaply as possible. I do not want to discourage the idea, but the proposal seems to be that there should be fifteen different bodies, and something like nine hundred prize plans produced. That means I do not know how many others rejected. When you have got all this mass of plans, how are you to discriminate which are really the best?

Professor Adshead: I have been intimately connected with this question of cottage building for some time. We, the architects, though not in agreement with every detail laid down, are all agreed on the desirability of regarding this proposal from a national standpoint, and doing the

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thing in a big way which shall create a real, live public interest. The points you have raised, Sir Horace, are very real points. You have pointed out that many designs have already been produced, and have asked what reason there is to suppose that we shall get on any further with additional designs. My reply would be that in the first place these competitions promoted by "Country Life," and the various designs produced by the Board of Agriculture, the Local Government Board, and others, while very valuable, have been all more or less either not sufficiently local or, in a sense, too one-sided—that is, too utilitarian, perhaps, in one part and too artistic in another. If we could have competitions such as are outlined here, my view is that they should be preceded by a very thorough search into the conditions of the competitions by a committee which would consider the details in a big and careful way, in order to secure that the cottages will not be of an indiscriminate kind but will comply with very well-thought-out conditions.

Mr. Lanchester: Might I add two words to what Professor Adshead has said? Such a programme, of course, would have to be based on carefully studied conditions. Previous efforts have not, I believe, really dealt with the matter on broad lines.

Lord Rhondda: Now shall we pass to the fourth section, "The Reservation of Suitable Sites for Housing Schemes and the carrying into effect of Schemes on Town Planning Lines."

Mr. Aldridge: We are very anxious that the housing schemes carried into effect after the War shall have the mark of good planning upon them, and should conform to the best modern standards. We came to you some weeks ago on the question of War Gardens, and we are glad to say that the appeal we then made has since been acceded to in practically every detail. With regard to War Gardens we realise, as a nation, the enormous importance of providing gardens round the homes, so as to preserve amenities and to have home-grown food as well.

Mr. Shawcross: We think that it is enormously important to secure land for housing schemes without delay.

Lord Rhondda: Do you suggest there is difficulty in getting options now?

Mr. Shawcross: As I said in my opening remarks, there has been great difficulty since the passing of the Finance Act. People are very chary about saying what the price of land is.

Lord Rhondda: Getting options in ordinary business is, of course, a very common practice, but is not getting options of this kind by local authorities rather a novelty?

Mr. Shawcross: Perhaps the better term would be, entering into an agreement to purchase.

Mr. Aldridge: We think that in rural areas the country landowners will meet the local authorities in a very generous way. There is really a fine feeling abroad in the country. I think 90 per cent. of the cases both in urban and rural districts will be dealt with on generous lines.

Mr. Shawcross: The difficulty is you very often cannot get at the owner; you have to deal with an agent who frequently will not consult the owner.

Mr. Dickinson: As some of you know, we have been encouraging local authorities in this direction for the last eighteen months. Local authorities tell us they have a difficulty in getting definite agreements for so long a time ahead. You are really preaching to the converted in regard to this matter; we have been doing what you suggest for eighteen months past.

Mr. Smethurst: Possibly they are waiting for you to make a declaration on the other questions.

Mr. Dickinson: Possibly. Still, as regards the principle, we are absolutely in agreement.

Alderman Farr (Card Room Operatives): I have had some experience in municipal work, and I would ascribe the disinclination on the part of municipal bodies to take up housing work to the hindrance of various interests. Whatever enterprise may be entered upon in this particular direction, I do hope, my Lord, that a parochial, narrow spirit will be entirely eliminated. We have in our big towns tens of thousands of houses which are jerry-built and infested with tuberculosis and other germs. Disease is rampant in many of our towns, and the failure of private enterprise is responsible for this. I hope you will let the working man of Lancashire know that you are going to secure that he shall be provided with a home where he will be able to bring up his family free from the taint of immorality which exists in our big towns owing to the impossibility of separating the sexes. Think of it, my Lord, the women workers in our mills are working in a temperature of from 70 degrees to 90 degrees, in a dusty atmosphere, for ten hours a day, and when they reach what they call home they have to pass the remainder of the twenty-four hours in rooms that only give something like 250 to 300 cubic feet of air space per head. The conditions of the home life of the workers of the country are not of a kind under which we can expect to have strong generations to follow.

Lord Rhondda: Is there anything more you wish to add?

Mr. Shawcross: There is one point I might perhaps mention. If you secure these designs you will then have a very much better idea of the cost of these houses in different places. If you secure standardised designs for the whole area you will be very much better able to deal with any differences in price there may be.

The Reply of the Secretary for Scotland.

Right Hon. R. Munro, K.C., M.P. (Secretary for Scotland): Lord Rhondda and gentlemen, I regard it as a great privilege to be present here to-day, and to listen to this very interesting discussion. In so far as the problem is an English problem, I have neither the right nor the desire to intervene in this discussion, but of course it is truly a national problem, and it affects Scotland as well as England. I recently had the privilege of meeting a Scottish deputation on the same question, at which I ventured to express the views which I hold. They are largely those which Mr. Walter Long held, and which Lord Rhondda, I know, holds—namely, views of sympathy, so far as the Government is concerned, with the desire which has been expressed to find a solution for a problem the urgency and the gravity of which no man can exaggerate.

Well, now, the position in Scotland, as my Scotch friends know (I think one or two of them are here to-day), is that a Royal Commission upon Housing is sitting at this moment, and I hope to have their Report very shortly. I do not propose, of course, to take any action, so far as Scotland is concerned, until I have that Report in my hand, and, as I say, I hope to have it in a very short time. If I might make a practical suggestion to you, ladies and gentlemen, it would be that you should forward a copy of your memorandum to the Secretary of the Scottish Housing Commission for the consideration of that body. It might be quite useful if they saw their way to support your proposals as a whole or in part, and in any case it will be an advantage that they should be apprised of the programme you have prepared, and consider it in line with the programme which they are going to lay before the Government for its consideration. Apart from that I will only say I shall make it my business to study this memorandum myself, independently of the Housing Commission, and reach a view with regard to it.

There are just two points, if I may mention them, which *prima facie* I find it a little difficult to accept as propounded this afternoon. One is the statement that the grants which you want are grants which would be sufficient to bring the cost of the cottages down to the prices at which they could be built before the war. I have no right to speak for the Treasury, but I should think you will find some difficulty in getting the Treasury to accept that principle. The munition buildings which are being put up under Treasury auspices are being erected on a very different principle, as you probably know

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—namely, the difference between the cost price to-day and the post-war value of these buildings—and it is for your consideration whether you will insist on the application of a principle with regard to which I anticipate you will have a little difficulty, or whether you might not consider the applicability of the principle which the Treasury has accepted in regard to the erection of munition buildings at the present moment.

The other question about which I will say just a single word is the amount which you propose should be allocated to procuring designs, and—perhaps because I am a brother Scot—I share Sir Horace Monro's doubt as regards the reception which that proposal may receive at the hands of the Treasury. £150,000 is an exceedingly large sum for any such purpose. In Scotland we have a number of designs ready to hand, and I doubt whether a sum of money of such a considerable amount would receive Treasury sanction.

These are more or less matters of detail which may be subject to reconsideration. All I can say is that I have listened with the utmost interest and attention to all that has transpired in this room to-day, that I think I have benefited by it, and that I shall certainly very carefully consider not only the discussion which has taken place here, but also the memorandum of which I have been privileged to receive a copy.

The Reply of the Parliamentary Secretary of the Local Government Board.

Right Hon. W. Hayes Fisher, M.P.: I gladly accept Lord Rhondda's invitation to say a few words.

The last time I joined Lord Rhondda in receiving a deputation here was on the occasion of a deputation on the subject of a Ministry of Health. I ventured to say then that however you might constitute a Ministry of Health, whether you were trying to deal with the question of infant mortality, or to improve the death rate, or to diminish disease in any form, at the bottom of all these questions was really the question of housing. It is, in my opinion, far and away the most important national question of the time. I shall be only too pleased if I am able to help in any practical solution of this great national problem.

I stated then, and I state again—and you will probably all agree with me—that at the end of the war there will be a shortage of houses in this country of at least 500,000—quite apart from those houses which you will have to demolish.

At present I am engaged day by day in preventing the demolition of houses—only because there is nowhere else for the people to go if those houses were demolished. Otherwise I would gladly sign orders for their demolition. But if, when the time comes, you are to build these necessary houses rapidly, you must be preparing your plans at once.

We have already elicited a certain amount of information from the local authorities as to the work which they think they would desire to carry on, and can usefully carry on, after the War, including housing. But I admit that a year ago there was, after all, not much temptation to a local authority to sit down and say "Well, we think we should like to build, say 5,000 houses, and we have an idea of the places where those 5,000 houses should be—a thousand here and a hundred there, and so on." There was not much temptation for them to do that before they knew whether the State would assist them or not, and when they were absolutely uncertain where to get the money, quite apart from the cost of materials.

Now, I hope Lord Rhondda will be able to secure from the Government a promise that substantial financial assistance will be forthcoming. It might be done in more than one way—I am not going to say it will be—but it might. I do not think much of the idea of just making the cost of the house after the War equivalent to the cost of the house before the War, but it might be given partly in the form of a free grant towards the cost of these houses and partly in the form of a cheap rate of money.

With regard to the agencies through which the work is to be done I think the local authority will be the principal agency through which you will build. You will probably use the public authorities and you will probably use the local Public Utility Societies, but I hope you are not going to shut out private enterprise. I believe large landowners, and large business men, will be inclined to borrow money at a cheap rate to build houses, even although the State should say "We want to have some control." At all events do not shut it out. We want to consider all agencies.

The Reply of Lord Rhondda (President of the Local Government Board).

Lord Rhondda: Well, gentlemen, I have to add very few words indeed. This discussion has been most useful and most informing. You have put before me to-day a number of propositions to which you do not, of course, expect me to give a definite answer on behalf of the Government. I have no authority to do so. But I hope I have satisfied you that in this Department you have a very sympathetic Department.

We fully realise that this question is the most important and urgent question with which we have to deal, and you may rely upon it that the suggestions and proposals you have put forward will receive my very earnest consideration. I cannot now pledge myself to any of these proposals, but I will give you this general assurance, that I am sympathetic towards them.

I hope very shortly to put my plans before the Government, and I shall be in a better position, I hope, the next time you come to give you a more definite reply to the proposals you have put before me.

Mr. Shawcross: It only remains for me to express our most hearty thanks for the very kind way in which you have received us. I hope that we have been able to submit a few points of value, and I would, in conclusion, ask that the decisions of the Government should be published as soon as possible, so that we can get ahead. We desire to express our warm thanks to you, my Lord, for so kindly receiving us, and also to Mr. Hayes Fisher and the Secretary for Scotland for coming and speaking to us here to-day.

ART IN LONDON.

MR. OLIVER HALL IN LANDSCAPE ART.

THE latest exhibition at the Leicester Galleries is not inspiriting—some oil and water-colour studies (by Mr. Hall) of how not to do it; his palette is muddy and dull and his outlook on his subjects untouched by the visionary's art, which should play such an important part in the landscapist's productions. What to see and what not to see, that is the first desideratum; the mind alert and the eyes partially closed, the vigorous brain and the light hand—all this is factorial to good work. Some very few exhibits are acceptable, such as "Appledore" (3), "Shap Moors" (9), "Sussex Woodland" (19), "Edge of the Wood" (27), "Ludlow Castle" (38), and "Showery Weather, Bardsea Sands" (44); the last named is a mere nothing for subject, but is, in its way, masterly. "Old Houses, Ludlow" (31), is a veritable painter's study, not an architect's, and is not admirable.

A LADY-ARTIST'S ADVENTURE INTO THE REALM OF LITERATURE.*

BUT this is not Mrs. Raphael's first adventure into wonderland; we had the pleasure, on a former occasion, of noticing "Phœbe Maroon," that most unconventional but physically attractive young lady-poseuse for the disciples of Apelles. Berthe Laroche, the piquant waitress at the Café Mendiant, is, however, possessed of more than

* "As Chance Would Have It." By Mary F. Raphael. (London: Duckworth & Co. 6s.)

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merely physical charms; and though the book commences with the twentieth century disregard of Mrs. Grundy, it is merely as a background for displaying a perfectly respectable drama. The book holds the reader's attention throughout its three hundred pages, and is none the worse (au contraire, it is an improvement) that there is no deep-laid plot to be unravelled, or intricate complications to be straightened out. Reinette is a delightful conception, and the direct, honest nature of Gregory Earle and the Dumaresques' manly Britishness go far to counteract the effect produced by the cattish qualities displayed by Mrs. Kitty Rance. Mrs. Raphael will do well in future to dispense with the numerous catch-phrases and quotations which (admissible in conversation) are to be deprecated between the covers of a book. Her original phrasings, her descriptions of character and her artist's appreciation of scenery are all welcome ingredients.

THE REMARKABLE APPLICATION OF TOWN-PLANNING PRINCIPLES TO THE WAR-TIME NECESSITIES OF ENGLAND.*

By EWART G. CULPIN, Secretary of the International Garden Cities and Town Planning Association.

ONE of the most serious, perhaps the most serious social problem which confronts Great Britain at the present time, and which will be even more serious at the termination of the war, is the question of the great shortage in the supply of cottage dwellings. The universal British custom of a one-family dwelling for all classes of society has been well ministered to by all sorts of enterprises in the past, but for the last seven or eight years there has been an enormous falling off in the amount of cottages provided, so that at the present time it is estimated that no less than 400,000 cottages are required in England and Wales to make up the present shortage, which is increasing at the rate of 75,000 per annum.

A number of reasons are given for this shortage. Legislation which had as its object the securing of the "unearned increment" and the prevention of the holding up of building land has operated in an unexpected manner, and the old English idea of security in real estate has received a shock. The opening up of other and more remunerative channels for the employment of capital has had considerable effect, and another very important factor is the enormous increase in prices, which even before the war had become so very marked owing to the activity of combines among building-trade merchants.

One of the principal agencies for cottage-building at the present time, and one which promises to become increasingly important as time goes on, is the garden-city movement toward housing on co-operative lines by societies of public utility. Already some eighty such societies are affiliated to the British Garden Cities and Town Planning Association, and between them they have built some eight thousand cottages and have a large acreage of land ready planned and with every arrangement made for going on with work at the earliest possible time. Every one of these estates has been laid out in accordance with the best ideals of modern town-planning and with due regard to the garden-city standard of housing.

The number of houses is not large, considering the total, but it must be remembered that the activity resulting in the formation of the societies had its reward only in the two years preceding the war. In 1913, twenty-five garden-suburb schemes were started on 1,500 acres of land for the housing of 90,000 people, and this work was in process of rapid expansion when the war came and, naturally, put an end to much building work. There has, however, been a large amount of building going on in those areas where increase of population made essential the provision of extra housing accommodation, and although in some places it was necessary to erect temporary wooden houses, there has been all over the country a keen desire to see that the accommodation provided was of such a character as to be a permanent asset to the housing resources of the country. Thus, even during this present year some thousands of cottage dwellings have been built.

The most remarkable of all is without a doubt the Well Hall Estate, which was built by the Government for the accommodation of munition workers at Woolwich. Some sixteen hundred houses have been built there on virgin soil, and the result is a community which I can confidently say is, from the architectural standpoint, without equal in the whole world. Formerly I would have given the palm to Margaretenhohe, near Essen, while the Hampstead Garden Suburb ran that closely, but the Well Hall Estate is undoubtedly first. Design, material and workmanship are of the highest character; the variety in architecture and in finish prevents any semblance of monotony; and already some charming street pictures can be obtained. Roughcast of various finishes, half-timber, red brick, and tiled fronts are carefully introduced into the scheme, while in some instances an overhanging upper floor gives fresh character to a street. The existing trees have all been preserved, and a number of corner plots have been left for ornamental gardens and shrubberies. The fatal objection to this scheme is that the community sense is lacking. There is no provision for a public hall, a place of worship, for play or amusement; there is no store, there is no school.

This is where the housing by societies of public utility shows such a great advance: the social side is ever present because it has been the reason for the work. In all those which are sufficiently advanced there are institutes, reading-rooms, and clubs of various sorts, and especial attention is given to the fostering of the spirit of neighbourliness. The most important societies devote a certain percentage of their income to social work, and in others a premium is put upon what is termed "good neighbourship" by means of additional facilities for the tenants. The estates of public utility societies will not have the same architectural pretensions as Well Hall because they will not have the money to spend upon it. The expense on the Well Hall Estate was colossal, so much so that there is a fear that the extravagance may deter others from copying the example.

Of the works being carried out under the Ministry of Munitions, one is not allowed at present to speak, but when the time comes for a record to be placed before the world of what has been done in this regard, it will be a revelation. Much could have been excused at such a time and under such conditions. One has only to read the accounts which have appeared in the British press from the pen of Sir Arthur Conan Doyle on the new munition towns that have sprung up, to realise that the whole of this has been done under town-planning conditions and with an eye to the future ordered development of these communities. That this has been the case is due to the recognition by the Government of the value of the improved housing work which has resulted from the activities of the garden-city movement, and there is little doubt that the example of Letchworth and the other places which have followed in its train has convinced the world of the sanity of building in this manner.

In the press of November 28, for instance, Sir Arthur Conan Doyle gives a description of a town he calls Moorside, nine miles long and a mile and a half wide, which twelve months ago was only a lonely peat-bog fringing the sea, and now has a population of some 25,000 inhabitants and a staff of 1,500 builders still engaged in extending the place.

Although names must not be mentioned, it is well to recognise that two of those who have been most employed upon this work of building in war-time are men whose names are most honoured wherever garden cities and town-planning are talked about.

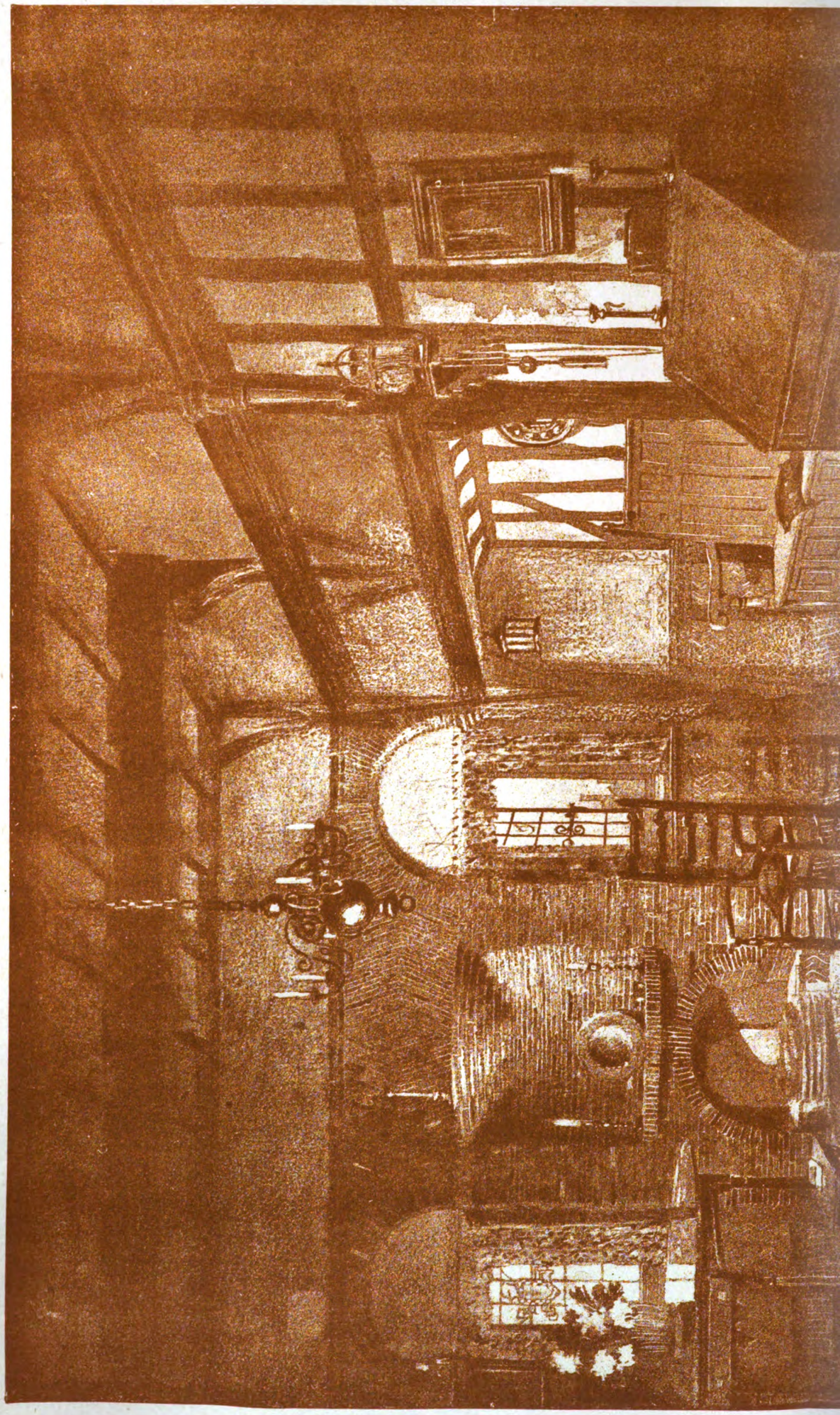
From the architectural standpoint the development of the English cottage is a matter of considerable interest. Everybody knows those long, long rows of continuous terraces of cottages and small villas, all of one type, repeated *ad nauseam* over all the outskirts of all our

* From the Journal of the American Institute of Architects.

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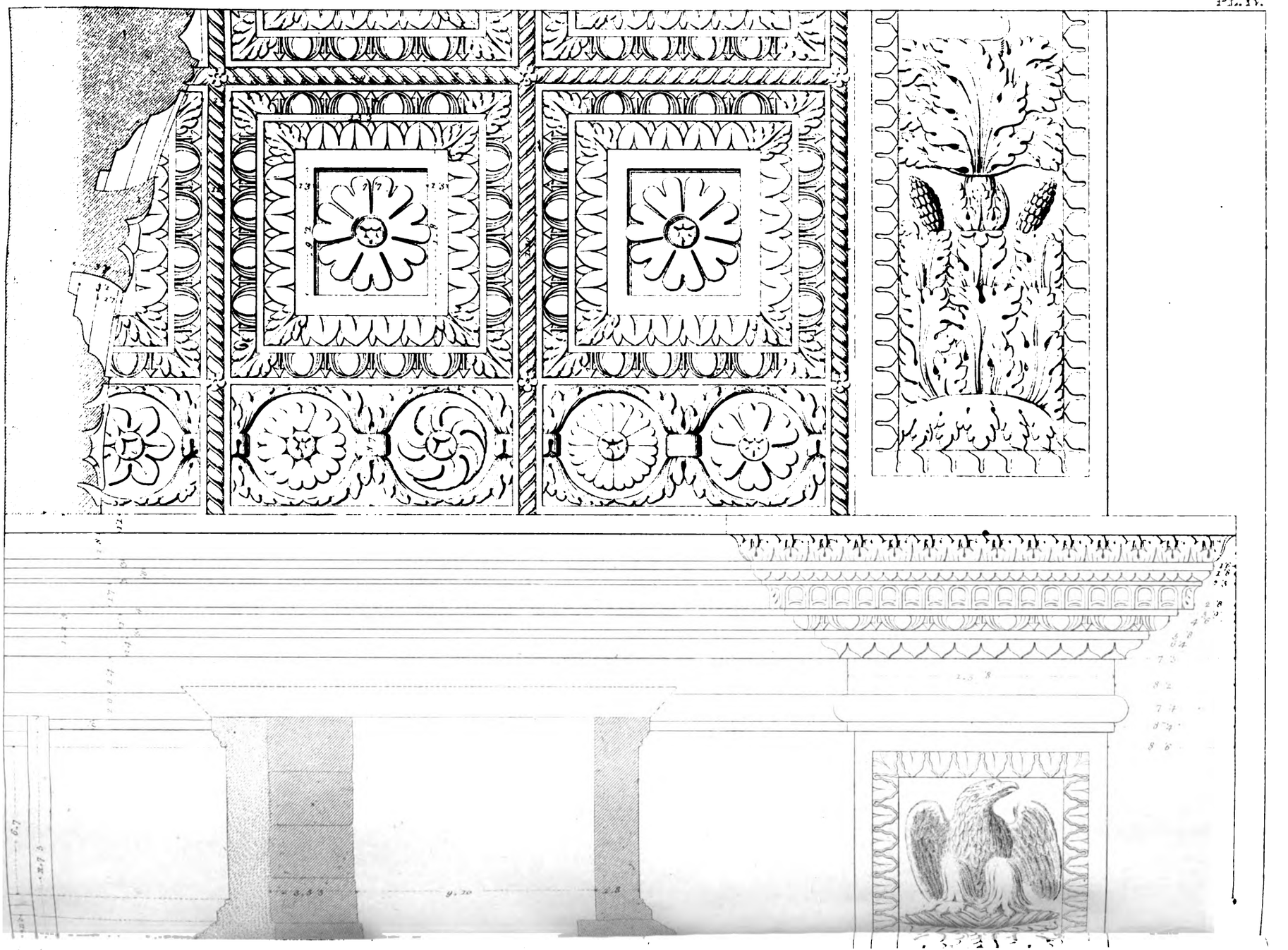
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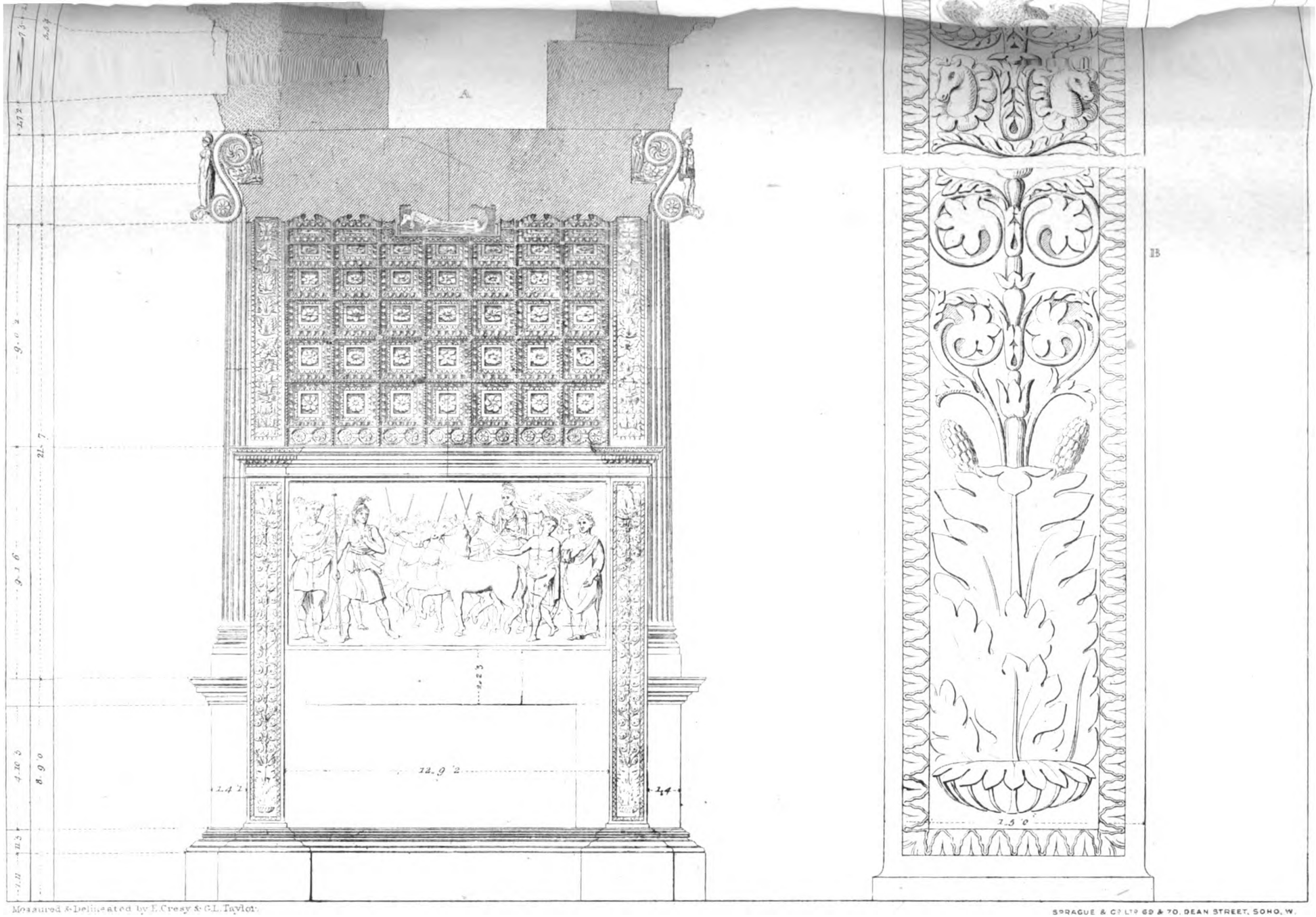
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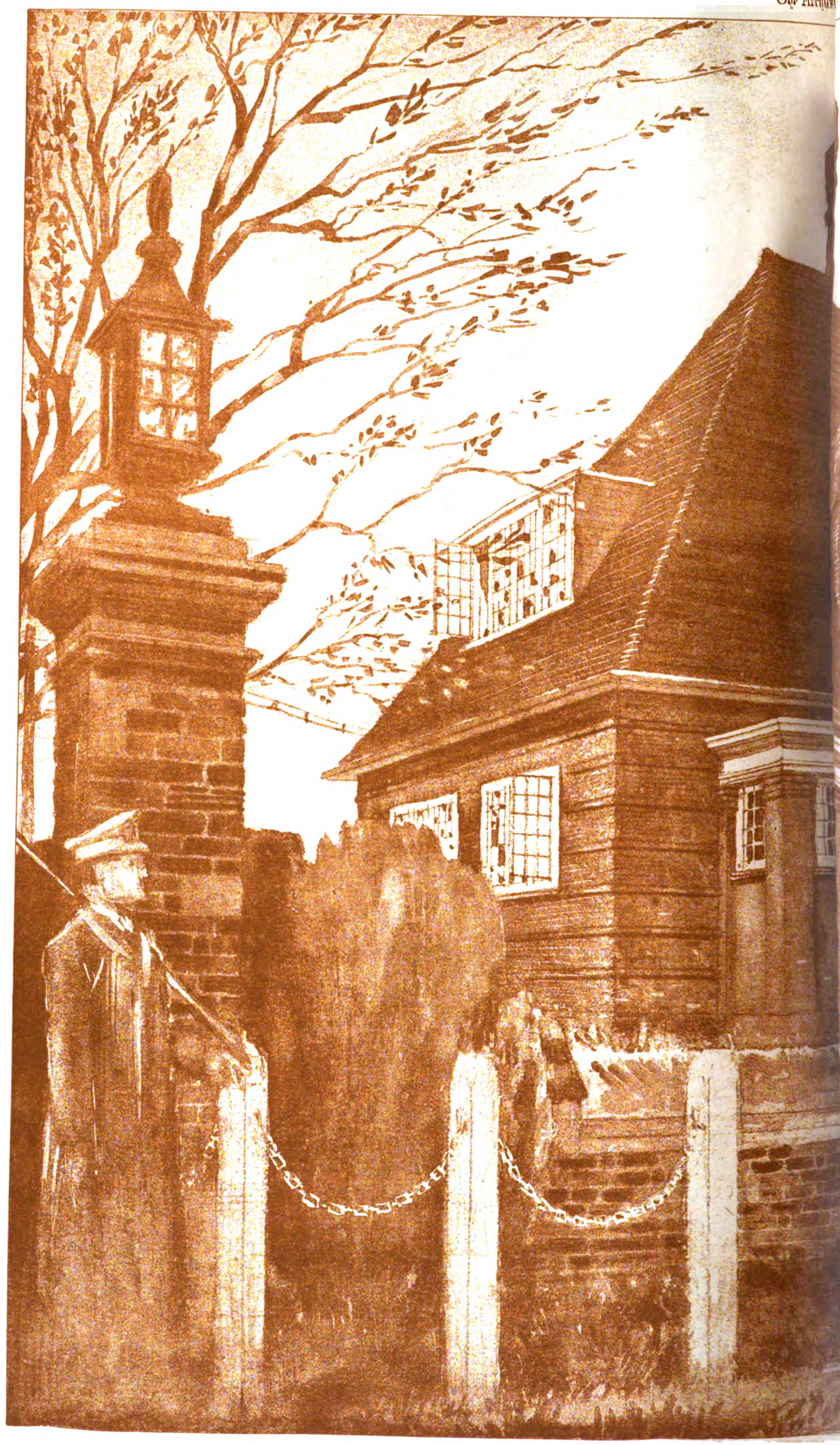
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GARDEN ENTRANCE. THE COPPICE, WEYBRIDGE.

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industrial towns. There is hardly a variation from a standard type, which comprises the narrow frontage with a deep setback, effectually screening light and air from what came to be the principal living-room of the house.

When the coming of the garden-city movement opened the way to a revival of domestic architecture and gave a new meaning to cottage-building, there was such a violent swing of the pendulum that in the attempt to escape from the cramping hideousness which had disfigured our towns for the past two or three generations, all sorts of artistic extravagances were introduced into cottage-planning. Gables and oriel windows, leaded lights and long, sloping roofs, excellent in their places and things of beauty when carried out on a certain class of property, were specified for cottages whose occupants could pay only a few shillings in weekly rent. There was a sort of impression abroad that everybody who was to come and live in these cottages was a "fresh-air fiend," a student of Ruskin and Thoreau, and that if there were those who were not lovers of the simple life, they had "jolly well got to be." So we had the street-doors opening into the large, and often draughty, living-room, with the open stairs to the bedrooms going out at another corner, while very little provision was made elsewhere for cooking or for other domestic duties. The bedrooms were none of them square, and headroom was a minor consideration, so that getting into and out of bed became sometimes a matter of delicate strategy.

I am far from regretting that these things were done. They were probably necessary and were almost inevitable. If some of them were absurd and overdone, at any rate they directed many people's minds to considerations which had not previously been studied at all, and without doubt they woke in many people a latent appreciation of artistic construction. But it was overdone and it was expensive, as many cottage companies and owners have found to their cost when they have come to make alterations necessary to secure tenants after the first rush of popularity had subsided. After a dozen years of constant experiment, a type seems to be evolving which does more nearly meet the case.

In a recent visit to a number of these schemes I was impressed by the fact that the logic of circumstances has forced upon cottage architects the conclusion that the simple type of cottage is the one which must now be concentrated upon, and that the plain roof is superior for this purpose to the type which was formerly so much used—a type which was certainly more picturesque but which was more expensive, did not contain so much accommodation, and was not, by reason of the many breaks in the roof, so impervious to weather.

One does not want to see a whole colony of one-type cottages, with a simple front and a simple roof, any more than the present town street of one-type houses, but there are enormous possibilities even in dealing with one type when that one contains nothing which is architecturally objectionable, even though it may not include everything that we desire. In one new garden suburb of six hundred to eight hundred houses there are only three types of cottage provided, and yet the colony has a charm of its own, simply on account of the skill with which the site-planning has been done. By varying the size of the blocks, by setting back here and there, forming squares and gardens, and securing by proper placing a "closed-in effect" for the streets with a decent block in the vista, this scheme has been given a distinctive character.

We have to face squarely the problem which is before us in the British Isles. Building has become, I fear, permanently dearer, and we must cut our coat according to our cloth, and as cottages must be provided, we who stand for an improved type of house with a proper environment and with social advantages, must find a type which will at once provide the accommodation which the speculating builder has provided in the past and also give us those improvements in internal accommodation and in design for which our movement stands.

For the moment, therefore, I pin my faith to the simple plain type and look to site-planning and grouping to provide the necessary variety. When things become normal again, then, perhaps, we can add some more ornament and have more freedom in design, but for the moment we must be content.

LAND PURCHASE SCHEME FOR SMALL HOLDERS.

MR. C. J. F. ATKINSON, Registrar of the Otley County Court, has worked out the details of a scheme to provide facilities for the purchase of small plots of land on the instalment system. This scheme is now well under way, and what is known as the Burley-in-Wharfedale East End Allotment Society has, through the efforts of Mr. Atkinson, been formed and duly registered.

Some three months ago the members of the society obtained possession of about four acres of land from Mr. George Procter, of Oak Avenue, Burley-in-Wharfedale, and it is differentiated from other allotment organisations by the fact that it provides for the acquirement by its members of the freehold of their plots, instead of a mere tenancy or lease. It has, moreover, no connection with any local authorities or other public bodies, the central idea being the independence of the freeholder and self-government by the members. Model rules have been prepared by Mr. Atkinson. The method of working is to arrange to buy the land from some owner who will accept his purchase money by instalments. When the land has been bargained for, it is divided into plots of uniform size as near as possible, and these plots are allocated by ballot amongst the members. A member may, however, take more than one plot. The standard size of the Burley-in-Wharfedale plots is 300 square yards, and seventeen members out of thirty-five have taken two plots each. The purchase money is paid to the vendor in half-yearly instalments, with interest, until the whole is paid off in a period of, say, ten years. When the society has secured the freehold, each member who has paid up his subscriptions is entitled to a deed of conveyance of his allotment, as absolute owner. He can build upon his land if he has the means to erect a house, or can raise the money from a building society. All buildings on the land are carefully regulated by the society's rules, and to prevent overcrowding not more than one house may be built on each allotment. The frontage lines are to be fixed by the committee of the society. These shall not necessarily be the same for both sides of the road, and will be so fixed as to leave open as much land as possible on the sunny side of the houses. The control of the society will secure that unsightly objects and ugly wooden buildings will be avoided. Even temporary sheds, such as poultry houses, must be approved by the committee, and be so built as not to be unsightly or a nuisance. The regulations of the committee will also provide against such common grievances as trespass by poultry, the seeding of weeds from neglected plots, obstruction of sunlight, and other things detrimental to the common interest of the freeholders.

As to finance, every member pays a fixed sum of £1 on applying for membership, and a weekly subscription of about 1s. per plot. This payment continues until the purchase money and all expenses are all paid off. The accounts are subject to professional audit, and all moneys are paid through the society's bank account. The rules provide for fines upon members who are eight weeks in arrear with their subscriptions, but if a member is able to show adequate cause, the committee are empowered to grant him relief by suspending his subscriptions for a short time. The society is managed by a committee of thirteen, including a chairman, vice-chairman, treasurer, and secretary. It is pointed out that societies of this kind for the securing of freehold allotments are specially suitable for Yorkshire, because the legal title to the land is protected by the Yorkshire Registration Acts. It has already been observed that men who have their own freehold take a greater pride in the appearance and smartness

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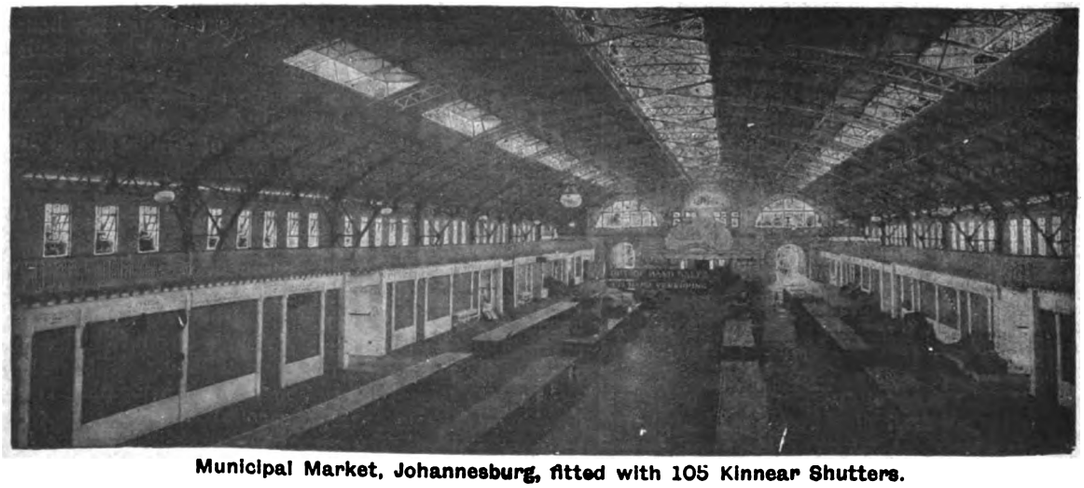
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of their plots than those who hold their allotments as annual tenants. The advantages of freehold ownership are obvious.

Mr. Atkinson has a firm belief in the possibilities of the scheme, and is of opinion that its adoption in wider areas might prove the nucleus of a system of peasant proprietorship. It may be added that if a dwelling-house were erected on each of the fifty-four allotments held by the Burley Society, there would be only sixteen houses to the acre.—"Yorkshire Post."

Correspondence

[The Editor will not be responsible for the opinions expressed by Correspondents.]

Coal Concreted from Ashes.

SIR,—In reply to your correspondent, Mr. A. Matthews, of Killarney, and to others who write me concerning the process of "concreting coal from dust and ashes," which was fully explained at a recent meeting of the Society of Architects.

The last paragraph in the excellent article of your issue of the 8th, I think, makes it clear that "upon the receipt of samples of any waste products of calorific value from any centre, tests can be made to determine the most satisfactory formula." From the context of the article it is further seen that this fuel cannot be produced upon any uniform plan. The characteristics of the varying aggregates and of the varying matrices require that the waste products of each locality should be carefully studied before determining upon the most satisfactory methods.

If these waste products be sent to my London Laboratories, 6 Woburn Square, W.C. 1, they shall be dealt with as rapidly as possible in view of the present stress of work.—Yours, &c.,

R. GOULBURN LOVELL.

SIR,—I have read with much interest in this week's copy of "The Architect" (June 8) of a method of producing fuel from waste.

The title of the article is "Coal Concreted from Ashes or Dusts," by R. Goulburn Lovell, A.R.I.B.A., M.S.A.

I have a large quantity of coke dust which I should like to turn into a fuel by such a process as described in the article mentioned, and will be much obliged if you can favour me with the address of Mr. R. Goulburn Lovell, as I understand he is willing to grant licences to work the process in different districts.—Yours, &c.,

A. B. LENNOX.

101 Shortridge Terrace, Jesmond, Newcastle-on-Tyne: June 19, 1917.

SIR,—In your issue for the 8th inst. you publish an article on Coal Concreted from Ashes or Dusts by Mr. R. Goulburn Lovell, A.R.I.B.A., M.S.A. Will you kindly let me know the address of this gentleman? I am desirous of communicating with him on the subject of utilising produce of this description, and have written to 46 Queen Victoria Street, E.C., which address was given in a directory, but the letter has been returned with remark "Gone away."—Yours, &c.,

B. P. BLOCKLEY.

[See letter in this issue from Mr. Goulburn Lovell, ED.]

THE Senate of the University of London have resolved to institute for External Students a B.Sc. degree, dealing with the administration and management of urban and rural lands and estates, and a scheme with the necessary syllabuses and regulations is in course of preparation.

BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders, the address is, as a rule, local.)

ENGLAND.

BEDFORDSHIRE.

Goldington.—Premises, Kimbolton Road: additions for Mr. R. Atkin.

BUCKINGHAMSHIRE.

High Wycombe.—Earl of Beaconsfield Memorial Cottage Hospital: enlargement (£10,000).

ESSEX.

Chelmsford.—Office additions for Messrs. Crompton & Co.

LANCASHIRE.

St. Anne's-on-the-Sea.—Shop and house, St. Andrew's Road South: alterations for Mr. W. Sutton.

Shops and warehouse, St. George's Road, for Mr. O. Shields.

MIDDLESEX.

Finchley.—Cottage Hospital: proposed war memorial enlargement.

Ponder's End.—Proposed Congregational church.

NORTHUMBERLAND.

Berwick-on-Tweed.—Allanton Mansion: rebuilding for Mr. Haig.

STAFFORDSHIRE.

Wednesbury.—Imperial Works, The Green, Darlaston: rebuilding for Messrs. C. Richards & Sons.

SUSSEX.

Brighton.—Eighty (or more) John Howard nurses' homes (£33,600) for the "John Howard Convalescent Home."

WESTMORLAND.

Kendal.—Stable and garage, Breezon Road. Mr. J. Hutton, architect, 22A Highgate.

YORKSHIRE.

Bradford.—Mortuary, Bowling Park, for the B.C. City architect.

Mirfield.—Proposed church for St. Peter's, Knowl.

WALES.

Wrexham.—Proposed new infirmary.

SCOTLAND.

Dundee.—Business premises, Strathmartine and Coldside Roads, for George Will, Ltd.

Works, Birkscroft and Dens Streets: alterations. Mr. D. J. MacDonald, builder, South Street, Roque's Works.

Glasgow.—Nos. 202-212 Broomielaw and No. 10 Carrick Street: additions and alterations for Messrs. Telford, Grier & Mackay, Ltd.

Scotstoun Ironworks: extensions, South Street, for Messrs. Mechans, Ltd.

Craigton Engineering Works, Juror Street, Cardonald: extension for Messrs. Murray, Workman & Co., Ltd.

Nos. 59-65 Pitt Street: Workshops and offices for Messrs. Fraser & Borthwick.

IRELAND.

Belfast.—New buildings (£75,000) for Messrs. Harland & Wolff.

Cinematograph theatre, Newtownards Road: additions and alterations for the Irish Electric Palaces, Ltd.

Dublin.—Business premises, Henry Street: rebuilding. Mr. F. Bergin, architect, 36 Westmoreland Street.

No. 9 Lower Sackville Street: rebuilding. Mr. F. W. Higginbotham, architect, 32 Bachelor's Walk.

Proposed 500 (or more) Corporation houses (£190,000).

Newry.—Stores, Needham Place, for Mr. A. M. Boyd.

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THE ARCHITECT

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FORTHCOMING EVENTS.

Saturday, June 30.

Edinburgh Architectural Association: Annual Excursion. To New Garden City, Rosyth, and Dunfermline Abbey. Leave Waverley Station at 10.25 A.M.

Royal Sanitary Institute at the Town Hall, Weston-super-Mare. Discussions on Meat Inspection and Cold Storage, at 11.30 A.M.

Wednesday, July 4.

Royal Archæological Institute:

Friday, July 6.

London Society at the Hall of the Society of Arts: Lecture entitled "London Bridges," by Mr. W. D. Caröe, M.A., F.S.A., F.R.I.B.A., at 5 P.M.

FATIGUE, EFFICIENCY AND OUTPUT.

In the immediate future after the war, architecture and architects will more than ever be concerned to provide for the accentuated national demand for increased output resulting from augmented efficiency and the reduction, as far as possible, of fatigue in all occupations. Architecture has always, when worthily active, had for its objective the production of the fittest. Fitness, suitability, convenience, efficiency, have ever been the attributes of the best buildings and the æsthetics of the art of architecture, the outcome of the provision and expression of these qualities.

The war-time necessity for obtaining the maximum output from our workers without injury to their health, due to accumulated fatigue, has led, at the instance of the Ministry of Munitions, to investigations in a subject hitherto almost untouched in this country, the connection between fatigue and industrial output.

Physiological methods have been to a wide extent used by the investigators, but it has come to be recognised that, in the study of fatigue, account has to be taken of many things that are so inexplicable at present in terms of physiology as to be called psychological. It is now commonly known that fatigue occurs due to anything that affects the nervous system, indeed, Professor Stanley Kent, the head of the Department of Physiology, University of Bristol, whose investigations of industrial fatigue have been published by the Home Office as blue books, goes so far as to say that the seat of fatigue is rather on the nervous than on the muscular side.

Noise, worry, flickering lights, inefficient lighting, or light reflected from bright parts of machinery striking the eyes, faulty heating and ventilation, and an atmosphere of fussiness; in fact, anything disturbing to comfort creates a feeling of fatigue in the worker, but in different degrees with different workers, and in different degrees with the same worker, due to varying conditions of health. These complicated conditions make it extraordinarily difficult for physiologists to formulate laws, as no sound judgment can be formed upon a few isolated cases when in our industries the permutations of the varying factors are practically without limit.

Nor, up to the present, have the psychologists been any more successful in elucidating completely the factors of fatigue, or, as the report of the Committee of the British Association, appointed to investigate fatigue from the economic standpoint, puts it:—"On the whole, however, in spite of their experiments in school and laboratory, the work of the psychologists is still for the most part the reverse of illuminating for the problems of industry."

It is at this point, in our judgment, that there arises the part of the art of architecture as an agent for the elimination of the factors inducing excitement of the nervous seat of fatigue. The fitness and suitability of a good building are not limited to those more material elements which obviously and directly affect the health and the comfort of the occupants. There is, as we have for long realised, a psychological influence in a good building which has escaped the notice of the scientist, whether physiologist or psychologist. It is felt and recognised by the artist, it is felt, though not understood, by the man in the street, who knows what he likes but cannot tell why. It extends to the smallest detail of the good building, to every moulding as much as to more salient elements of mass and colour, proportion and form.

In every class of building, in the home, the school and the church, as much as in the factory and the workshop, the reduction of fatigue is a function of architecture, fatigue of the nervous system, as well as that of muscle.

The Health of Munition Workers Committee of the Ministry of Munitions in one of its memoranda thus defines and explains the causation of fatigue:—"Fatigue is the sum of the results of activity which show themselves in a diminished capacity for doing work. In ordinary language fatigue is generally associated with familiar bodily sensations, and these sensations are often taken to be its measure. It is of vital importance for the proper study of industrial fatigue, however, to recognise not only that bodily sensations are a fallacious guide to the true state of fatigue which may be present, and a wholly inadequate measure of it, but also that fatigue in its true meaning advances progressively, and must be measurable at any stage by a diminished capacity for work, before its signs appear plainly, or at all, in sensation.

"In the animal body the performance of work depends on the activities of parts which are best considered under three groups: first, the complex nervous mechanisms of the brain and spinal cord, which are concerned in the initiation and distribution of impulses to action; second, the nerves, which conduct the impulses to muscles; and third, the muscles themselves, which by contracting finally perform external work.

"Fatigue has been separately studied in all these parts. In its essential features the fatigue of all alike has been found, when it occurs, to depend not upon the simple using up—'exhaustion'—of the substances supplying the chemical energy which is liberated during work, but upon the accumulation within the living elements of the products of the chemical changes involved. Fatigue of the animal machine, that is to say, is not to be compared with the failure of fuel as in a steam engine, or with the running down of a clock weight, but rather with the clogging of the wheels in some mechanism by dirt."

The explanation here given of the triple groups of activities, in each of which fatigue may be initiated, enables us to elucidate the different parts that architecture may play in the elimination of reduction of fatigue. The construction of a staircase, for example, with such proportion between tread and riser as may minimise the fatigue of ascent is an instance of physical economy of muscle, and so with many other details of the planning and construction of buildings, all playing their part if well arranged in reducing fatigue of muscle, if ill-arranged in its accentuation. In a good building full consideration

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will be given to every detail that has such physical action.

But the architecture of a building does not stop here in its effect. It affects also the complex nervous mechanism of the animal body. A beautiful building not only passively abstains from harmful excitation of the psychic or nervous mechanism, but has a direct recuperative activity, and so assists to eliminate and not merely to avoid fatigue. This activity is for the most part subconscious in its operation, and hence its effect is often unrecognised in terms of bodily sensation of fatigue.

Beauty in a building is too much associated in the minds of the public with the addition of ornament to necessary construction, and the work of the architect is too often popularly supposed to lie in such addition of something extraneous to the mere utilitarian provision for bare necessity. The psychological influence of a good building is not dependent upon ornament, whether this be good, bad, or indifferent, although ornament when present does take its share in that influence. A building perfectly plain in popular estimation exerts its influence, for good or evil, on the complex nervous mechanism, and so is an element of high importance in the psychological aspect of fatigue. The lack of recognition of this element is, we believe, responsible for much of the difficulty that has attended the work of investigations of fatigue from the psychological side.

In an interesting pamphlet * on "Industrial Fatigue in its relation to Maximum Output," by Mr. Henry Spooner, we have put before us an epitome of recent investigations on the problems of fatigue from the physiological standpoint, and the endeavours of "efficiency engineers"—the latest American professional specialists—to reduce unnecessary fatigue as a deterrent in the attainment of maximum output. Some references are made also to the American development of scientific management, including motion study and time studies as factors in the system of speeding up the working man into as close an approximation to a machine as possible. That this movement is going too far is the view taken by Sir Robert Hadfield in his comment on the action of the United States Legislature in forbidding the use of scientific shop management systems in the arsenals.

Mr. Clynes, in his foreword, speaks from the point of view of labour, and deprecates the undue speeding up of the human machine with its too frequent corollary, the absence of a fair share of the increased profits from the remuneration of the worker. As Mr. Clynes rightly says, "the producer himself must be regarded as a man first, and a workman afterwards."

The object of all good architecture is to make the man happier rather than to get an extra foot-pound out of the workman.

NOTES AND COMMENTS.

THE example set by the building trade in the inception of a parliament wherein representatives of employers and employed can meet to discuss on equal terms and promote the general prosperity of the trade to the advantage of all is, as we expected, inciting the leading employers' associations and trade unions in other industries throughout the country to a readiness to follow the lead already given. At a conference held last week between representatives of the National Federation of Building Trades Employers of Great Britain and Ireland and the National Associated Building Trades Council (the latter embracing sixteen trade unions), a decision was reached to recommend their respective organisations to establish a parliament of labour for the discussion and settlement of all points of dispute as they arise.

Further progress in the promotion of better relations between capital and labour is being made by the Reconstruction Sub-Committee (of the Cabinet Committee) on Relations between Capital and Labour, which has been deliberating for some time on questions arising out of the war, demobilisation, and after. This sub-committee has issued a report, one of the chief suggestions of which, it is stated, is the establishment of a National Council of employers' and employees' representatives for each trade for the mutual solution of all problems affecting capital and labour.

This report, which is signed by representative men on both sides, will probably be submitted during the present week to the employers' and employees' organisations of all the leading trades for their consideration, acceptance, or amendment, with a view to arriving at a workable scheme for each industry. If the proposals meet with any general measure of acceptance, it is considered that one of the first steps to after-war reconstruction will be realised.

At a recent meeting the initial step in the fruition of the Dundee housing scheme was taken when the Housing Committee of Dundee Town Council agreed to approve of the principle of the Corporation building houses for the working classes. A minute of a meeting of a Sub-Committee was read asking the Committee to recommend the Town Council to approve of the principle of houses being erected by the municipality immediately war conditions rendered that possible, subject to adequate financial assistance being made available from national funds, such financial assistance to be not less than the increase in wages and materials due to war conditions.

In Sheffield the housing question is, naturally, very acute, and for the past six months or more a committee of the Federated Health Association has been exhaustively investigating the position of the problem. It includes representative men like the Archdeacon, Mr. E. M. Gibbs, and prominent members of Labour, Co-operative, and other organisations. The conclusion at which it has arrived is that the problem is very serious, and that it demands prompt action on bold lines. Specially important is it, in the estimation of the committee, that the City Council should get busy now; and that it should prepare a scheme for the development of the suburbs on the most approved lines. In order to assist in stimulating public opinion on the subject, it is proposed to hold a kind of conference-demonstration in September, with the object of trying to convince City Councillors that the citizens wish them to act now.

The Lord Mayor of Dublin evidently knows his constituents, for when questioned in regard to a requisition signed by the most prominent men in the city, that he should convene a housing conference as to whether it was his intention to convene that conference, and, if so, when, his lordship explained that it would be remembered that they were anxious that three of four schemes that the Corporation had in hands should be gone on with. With that object the Government were approached through the Chief Secretary. The money was promised, and, fearing the calling of the conference might clash with the securing of the money for these schemes, he refrained from calling the conference. He understood now that the money, if it had not actually come, was on its way. The instant that steps were taken for the building of Spitalfields, Fairbrothers', and other sites, he would call a conference.

In a lecture by Professor T. Turner at the Birmingham University, arranged under the auspices of the Ministry of Munitions, the lecturer referred to the melting practice in the United States, where crucibles are seldom used, and cupolas are regarded as obsolete. Air furnaces, or open hearth gas furnaces, up to 25 tons capacity are used, and large annealing furnaces, charged through the roof, which is arranged so as to be removed

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* "Industrial Fatigue in its Relation to Maximum Output." By Henry J. Spooner, C.E., Director of the Polytechnic School of Engineering, Regent Street, London, &c. With forewords by Sir Robert A. Hadfield, F.R.S., D.Met., D.Sc., Chairman of Messrs. Hadfields, Ltd., and Mr. J. R. Clynes, M.P., District Secretary of the National Union of General Workers. (London: Co-partnership Publishers, Ltd. 6*d*. net.)

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in sections. The great difference in composition of the iron used relates to the sulphur which for the "black heart" process must be low, and usually does not exceed 0.08 per cent., while in the European process three times this quantity can be present without injury. In each case it is now generally recognised that phosphorus up to 0.25 per cent. may be permitted, and even more is present in many good castings. The combination of mechanical tests with chemical and microscopical examination has led to a great improvement in the trustworthiness of the material from good makers. A standard wedge test was formerly regarded as satisfactory if the sample stood seven blows with a hammer: there is now no difficulty in guaranteeing 35 blows, and over 100 have been recorded. In explaining the action of annealing, reference was made to the researches of Royston, R. H. Smith, and other Birmingham students.

The movement for making this country self-supporting in its provision of raw material instead of being dependent upon alien nations at a fractional less cost is responsible for the action of a department of the Ministry of Munitions, under the direction of Sir Lionel Phillips. Steps are being taken to control and expand wolfram mines, from which it is expected to produce a home supply of tungsten powder, an essential ingredient in the manufacture of high speed steel. A complete survey of the lead resources of the country is also being carried out; new sources of supply are being investigated and old workings reopened. In one instance steps had been taken to assist in the drainage and development of an important lead mine, from which there is a prospect of an immediate increased output. Action is also being taken with regard to the production of zinc. A sulphur pyrites mine has been acquired, and certain low-grade copper deposits of considerable extent and promise are being carefully watched with a view to giving assistance in their working.

In the course of its immediate operations the department is gaining valuable information whch will allow it to offer future suggestions as to the prospect of the normal base metal industry of the United Kingdom. It will also be enabled to report on the relative cost of home production against importation, and to advise as to the placing of the industry in the best position to meet emergencies.

In an interesting article in the June issue of the "Burlington Magazine," M. Pierre Turpin describes and illustrates a medallion of stained glass, which he says is almost unique of its kind, and which he is convinced, after a visit to this city, was painted at Coventry. The medallion belongs to the Hon. H. D. McLaren, M.P., but was formerly in the possession of Thomas Sharp, the well-known Coventry antiquary, who, in 1793, sent a drawing of it (only approximately accurate, but undoubtedly representing the roundel now owned by Mr. McLaren) to the "Gentleman's Magazine," with a request for information about it. The letter to the "Gentleman's Magazine" was only signed with the initials "T. S.," but local knowledge and a comparison of dates identify the writer with sufficient certainty. The roundel, which is English work, dated by M. Turpin to the first half or possibly the first quarter of the fifteenth century, contains five small figures grouped around a central figure drawn to a larger scale, who is distributing food and drink to them. The central figure is not a saint, for he has no nimbus, and M. Turpin thinks it is probable that he was some pious benefactor or the founder of a charitable house, while the five figures around him are the ordinary inmates or casual patients of a mediæval hospital. One of them is lame, another blind, a third a cripple crawling on his knees, while a fourth may represent an imbecile, and the fifth is a pilgrim. M. Turpin discusses numerous details in these figures and the remainder of the medallion.

As to the identification of the subject, several possible theories are mentioned by M. Turpin, but his conclusion is that the medallion is not a symbolical representation of Charity or some other general virtue or idea, but that it was intended to commemorate some specific pious foundation in the town or neighbourhood of Coventry. "We know," he says, "that the roundel was there at the end of the eighteenth century, and it was very probably painted there by some artist of the school of John Thornton if not by the master himself. The latter supposition is, however, improbable, for a comparison with the drawing which Mr. Westlake has made of the world-famous east window in York Minster, certainly the work of John Thornton, shows quite a different feeling." Referring to the now fragmentary roundels showing the operations of the months which are preserved in the oriel at St. Mary's Hall, M. Turpin says they are of a slightly different workmanship from Mr. McLaren's roundel, but they seem to have been of local manufacture and to argue for an actual craftsmanship in stained glass in Coventry. A half-length figure of a friar in a south window of the clerestory of St. Michael's Church greatly resembles a monastic figure in Mr. McLaren's roundel.

ILLUSTRATIONS.

IMPERIAL COLLEGE OF SCIENCE, SOUTH KENSINGTON.

THIS building, designed by Sir Aston Webb, is one of the most recent additions to the great group of educational institutions congregated at South Kensington.

COMPETITIVE DESIGN FOR WAR MEMORIAL AT THE NEW COUNTY HALL, LONDON.

THIS drawing was submitted in the competition inaugurated by the Civic Arts Association last year. The instructions required that a cross should form part of the design, and that the form of the monument should be arranged so as to mask the principal entrance to the County Hall as little as possible.

BISHOP'S STALL, &c., CHURCH OF S. JOHN THE BAPTIST, KENSINGTON.

THIS stall was dedicated during the Patronal festival last year, as a memorial to the late churchwarden, whose tenure of office dated from the erection of the first section of the church, over forty years ago. It was executed in teak by Messrs. Dart & Francis, of Crediton. The marble panel with the arms of the diocese which occupies the arch over the stall is the work of Messrs. Whitehead and Sons, of Kennington Oval, who also carried out the marble panels on either side, memorials respectively of a benefactress of the church and the late verger. The third panel shown in the view was executed some years ago by Mr. Dyke, of Highgate Road. The wall arcade was erected at the time of the extension of the reredos in order to connect the latter with the parclose screens, and was the work of Messrs. Martyn, of Cheltenham. The design was illustrated in our issue of March 5, 1909.

ALTAR CANDLESTICK, CHURCH OF S. PETER, HORNSEY.

THESE candlesticks were designed for the altar of the above church, which we illustrated January 26 and September 28, 1906. They have been made in oak gilded, by Mr. A. Robinson, of Bloomsbury.

ARCH OF TITUS, ROME.

WE this week present our reproduction of Plate V. from Taylor and Cresy's "Rome."

A MEMORIAL is to be erected to the memory of soldiers who have fallen in the war at Yeovil, Somerset. The Mayor is to preside to-day at a public meeting at the Town Hall to consider the question.

THE Privy Council has officially sanctioned the creation of new Faculties of Engineering and Metallurgy in the University of Sheffield. The Faculty of Engineering has elected Dr. W. Ripper, the Vice-Chancellor, as its Dean, and Dr. J. O. Arnold has been appointed Dean of the Faculty of Metallurgy. Sheffield University has thus created a precedent in the university history of the world.

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ROYAL INSTITUTE OF BRITISH ARCHITECTS.

PRESENTATION OF GOLD MEDAL.

ON Monday last a general meeting of the R.I.B.A. was held at the rooms of the Institute, Conduit Street, Regent Street, for the presentation of the Royal Gold Medal for architecture, given by His Majesty the King.

Mr. Ernest Newton, A.R.A., the President, who was in the chair, announced that the winner of the medal—Monsieur Henri Paul Nénot—was unfortunately not able to be present, owing to an attack of bronchitis, but he was pleased to say that His Excellency, Monsieur Cambon, the French Ambassador, had sent Monsieur Adrien Thierry, the Secretary of the Embassy, to receive the medal on Monsieur Nénot's behalf. Proceeding, the President said it was customary on those occasions to give an outline of the career of the recipient of the medal, and although most of them knew M. Nénot's history, there might be some to whom his interesting and strenuous career was not so familiar. It was not often that a taste for the austere and difficult art of architecture manifested itself at a very early age, but they found M. Nénot, when only nine years old, already showing a marked predilection, not, as they might expect, for its external and more naturally attractive aspects, but by making a detailed and accurate plan of the "pension" at Villiers-la-Bel. Fortunately that tendency was encouraged by those responsible for his education, and he was placed at the age of thirteen years in the atelier of M. Lequeux. Surely the youngest architect pupil on record! At 15 he entered the Ecole des Beaux-Arts. His studies were abruptly interrupted in 1870, when, immediately on the outbreak of war, he enlisted, fought valiantly, and received, as his first decoration, the Military Medal. After the war he served his term in the artillery, and so great was his patriotism that it required all the persuasion of his former masters to prevent him from re-engaging in the Army and to bring him back into the paths of architecture and a resumption of his studies at the Ecole des Beaux-Arts. Here he continued to work until 1877, when, at the age of 24, he gained the Grand Prix de Rome. During those years M. Nénot worked in the atelier of M. de Questel and in the office of Charles Garnier, completed in collaboration with M. Oudiné for some important buildings in Belgium, won the competition, and was entrusted with the execution of the work. Many of them would think that after those strenuous years of study, crowned by the Grand Prix, M. Nénot might have considered himself fully equipped and entitled to settle down to the practice of architecture, but he wisely looked on all those years of work as preliminary, and, being persuaded that it was only by a profound study of the ancient masterpieces of architecture that a complete mastery of his art was to be gained, he visited in turn the principal towns of Italy and Greece, as well as Constantinople and Jerusalem, and finished his tour of study by a visit to Egypt. During his last year at the Villa Medici M. Nénot competed amongst 240 architects for the National Monument at Rome to King Victor Emmanuel, being impelled to compete by the laughing taunt of a very young architect that Italian architects were certainly superior to all foreigners. The prize of 50,000 francs was awarded to him, but the execution of the work was entrusted to an Italian. M. Nénot then undertook a tour of study in France, and a critical and careful examination of buildings designed for every purpose, and with all those years of careful preparation behind him, and equipped with this well digested knowledge, he entered for the great competition for the rebuilding of the Sorbonne, won it, and, after some hesitation on account of his age, he being then only 29, the execution of the work was placed in his hands, but was not actually begun until after he had visited the universities of Germany, Austria, Belgium, and Holland. He would not attempt to describe that great work, which took 17 years to complete; it was well known to all visitors to Paris, and was the subject of a fine monograph by M. Nénot, a copy of which was in the library of the Institute. M. Nénot had carried out numerous other works of importance, but it was with the Sorbonne that his name would always be especially associated.

Continuing, Mr. Newton said:—

I know it is expected that the President when he presents the Gold Medal shall efface himself so soon as he has delivered a brief introductory address and leave the stage to the medallist, whom everyone is anxious to acclaim, but I cannot at a time like this hand to a distinguished Frenchman this token of our respect and admiration without telling him, and through him his compatriots, something of what his great country is to us. It is a tradition that English people do not understand the French, and we may be almost grateful to the war for having revealed France to many who did not know her well. To architects the history and masterpieces of French architecture are of absorbing interest. Its unique Gothic architecture—the picturesque transition from Gothic to the mature and ordered Renaissance—modern work, all in turn, claim our admiration and show us achievements not only of the highest intellectual attainment, but containing always that something more than talent, that touch of personal and national genius so particularly characteristic of French architecture. France can boast of a long succession of highly distinguished architects who have gained their reputation by a profound study and complete mastery of the principles and technique of their art. All this splendid work can only have been done by a fine people. The very name, France, conjures up visions of a nation with as many facets as a diamond. Every period of its history is brilliant, but the France of to-day is perhaps the most impressive of all. Devoted to peace, although nursing a dignified determination to efface the memory of 1870, when the time came to put that determination into action there was at once manifest in every class and degree a quiet serene determination to suffer everything, to endure everything, and to conquer. Never in the whole history of the world have such battles been fought as during this war. Never have more heroic deeds been performed, and yet, amidst all these gigantic happenings, the steadfast and unbreakable resistance at Verdun stands out in lurid relief, and will be told so long as the world endures. It is impossible to believe that our two nations, having fought shoulder to shoulder throughout these long terrible years, can ever again break a bond cemented by the blood of our sons, but that, for all time, we shall be united by the tie of a friendship based on mutual understanding, affection and respect. This alliance should be proof against the insidious propaganda of that nation which has, to its eternal shame, brought to such perfection the truly devilish arts of lying, false witness, and sowing discord. I can only regret that it is not my pleasant duty to-day to decorate, as well as M. Nénot, a distinguished architect representative of the other Allies. We have already on our list of Royal Gold Medallists the names of famous Italian and American architects, and we may hope, when peace again allows us to pursue our art unhindered, to add to that list the names of architects of those other allied nations who are not yet represented on the Roll. He then handed to M. Thierry a replica of the Gold Medal, explaining that on the conclusion of the war it would be exchanged for one made of the real metal.

M. Thierry, who spoke in French, expressed his pleasure at being able to receive the medal on behalf of his distinguished compatriot M. Nénot, to whom he would convey the kind message of the President. Referring to Mr. Newton's expressions of hope and confidence that the alliance now existing between France and England would be a lasting one, he said he heartily re-echoed the sentiments which the President had given utterance to, and he could assure the English that the French had nothing but admiration for the peoples of this country.

Mr. Walter Cave then proposed a vote of thanks to the French Ambassador for deputing M. Thierry to attend and receive the medal on behalf of M. Nénot.

Mr. Guy Dawber seconded the vote, and it was carried.

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PRESENTATION OF THE PRESIDENT'S PORTRAIT.

Mr. Reginald Blomfield, R.A., amid applause, then unveiled an oil-colour portrait of the President, the work of Mr. Arthur Hacker, R.A., and formally presented it to the Institute. He remarked that it was three years almost to a day since Mr. Newton succeeded him (Mr. Blomfield) in that office, and he was sure that they would all agree that he had done his best under circumstances of very great anxiety and very great difficulty. At a very early period in the war he offered the services of the Institute and of the large and important profession it represented to the then Government. That offer was received with a discourtesy which he (the speaker) could only attribute to a happy ignorance of the whole situation. The President, however, was quite undaunted by that rebuff, and he at once placed his services at the disposal of the Ministry of Munitions, where he had done good work during the last three years. The many fine qualities of their President had long been known to his friends, and they were legion. During his three years of office he had made many new friends and had won the esteem and regard of everyone with whom he had come into contact by his tact, sagacity, and ready sympathy.

Mr. Paul Waterhouse said he was expected to speak on the subject of the portrait, but as he had only known the portrait for a few seconds, while he had known their President for many years, he would confine his few remarks to Mr. Newton. It was difficult to say what one would like to say in the presence of so modest a man as the President, but he would venture to say that he was not only a first-rate architect, but he was a first-rate citizen, as he had proved during the past three years. Mr. Newton had a heart for the Institute, a heart for the profession, a heart for the Ministry of Munitions, and he hoped he had a heart left for his own home. In making their valediction to him on vacating the Presidential chair, they could congratulate him very heartily on the way he had filled it. He could leave his work at the Institute full of the satisfying feeling that, under extraordinary and difficult circumstances, he had well and faithfully fulfilled a very difficult task. Although he was no longer President, he (Mr. Waterhouse) trusted that Mr. Newton would not say good-bye to the Institute, but that for many years to come they would have his cheery and energising presence among them.

The President, in acknowledging the presentation, said that as his last act as President he had pleasure in formally accepting the portrait of himself on behalf of the Institute. It was a little indelicate to talk about one's own portrait, but he thought he was justified in saying that Mr. Hacker had presented them with a very fine piece of work. He thanked Mr. Blomfield and Mr. Waterhouse for their all too kind references to himself. He was conscious of many shortcomings, not only in carrying out his duties as President of the Institute, but in carrying out some of the other duties which had fallen to his lot during the last three years. He could say, however, that he had done his best and had never spared himself, and if he had come up to their expectations that was a sufficient reward. He was glad to think that his successor would have the help of his old friends, who had so well supported him (Mr. Newton) during his term of office. He was giving up with sincere regret after three years' service, during which he had certainly learned to understand the saying, "Uneasy lies the head that wears a crown"—even although it only be the crown of that Institute, during war time. As that was his last official appearance, he desired to thank the Council for all the support and help they had given him, and he desired especially to thank Sir Aston Webb for coming to his help at a time when his work in another place was occupying his time almost completely. For that reason he was not able to give the time he would have liked to the work of the Architects' War Committee, but Sir Aston Webb kindly came forward and took the burden off his shoulders, and he desired to thank him for that. He could only hope that his successor in the chair, who, he regretted, was not able to be with them that day, would continue to receive the support of the Council, and that his term of office would be a most successful one.

Earlier in the proceedings the hon. secretary said he deeply regretted to announce that two further names had to be added to the long list of members who had fallen in the war. Since the last meeting news had been received that Lieutenant Roland Walter Lines, a Fellow of the Institute, who was serving with the Canadian Expeditionary Force, and Mr. William Arthur Rigg, Associate, had been killed in action. He moved that an expression of deepest regret at their loss be recorded on the minutes of the meeting and that a message of sympathy and condolence be sent on behalf of the Royal Institute to their near relatives. The members signified their assent to the motion by rising from their seats.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

ALTERNATIVE PROBLEMS IN DESIGN FOR FINAL EXAMINATION.

Instructions to Candidates.

1. The drawings, which should preferably be on uniform sheets of paper of not less than Imperial size, must be sent to the Secretary of the Board of Architectural Education, Royal Institute of British Architects, 9 Conduit Street, W., on or before the dates specified below.

2. Each set of drawings must be signed by the author, and his full name and address, and the name of the school, if any, in which the drawings have been prepared, must be attached thereto.

3. All designs, whether done in a school or not, must be accompanied by a declaration from the Student that the design is his own work and that the drawings have been wholly executed by him. In the preparation of the design the Student may profit by advice.

4. Drawings for subjects (*a*) are to have the shadows projected at an angle of 45° in line, monochrome, or colour. Drawings in subjects (*b*) are to be finished as working drawings. Lettering on all drawings must be of a clear, scholarly, and unaffected character.

Subject XXXIV.

(*a*) or (*b*) A Billiard-room, 30 feet long by 20 feet wide, with fireplace at one end and large bay window at one side.

Drawings.—Plan and two sections to ½-inch scale, and details full size; one section to show scheme of colour.

(*a*) or (*b*) A Linendraper's Shop and Showrooms over four storeys above pavement, having a frontage to 60 feet to a main thoroughfare and a depth of 60 feet. It has a return frontage to side street.

Drawings.—Front elevation, section, and two plans to ⅛-inch scale; detail of entrance or principal staircase to ½-in. scale.

Subject XXXV.

(*a*) or (*b*) A Permanent Hostel for 25 Women Welfare Workers.

Site.—The site is practically level, has a frontage of 200 feet and a depth of 400 feet, and is on the south side of a main road running due east and west in a pleasant suburb of an English manufacturing city. The building line is 20 feet back from the road.

Accommodation, &c.—The welfare workers are women who have had a University education, and are engaged in a factory working on the three-shift system, but with no Sunday work. Bedrooms, dining-room, drawing-room, and writing-room are to be provided for the welfare workers, sitting-room and bedroom for the matron, bedrooms and servants' hall for the kitchen staff, together with the necessary bathrooms, kitchen, scullery, larders, &c.

Materials.—The materials easily available are red bricks and a hard sandstone, which can only be obtained in thin beds.

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Drawings.—Block plan, 16 feet to 1 inch, showing general arrangement of building, garden, &c. Plans of each floor, two elevations, and a section to a scale of 8 feet to 1 inch. Half-inch detail of part of entrance front, with one or two full-size details of masonry.

Subject XXXV.

(*a*) or (*b*) Almshouses for the poor on a site 100 feet by 100 feet, facing the street in a country town, with buildings on each side of the frontage.

There must be no windows to the east and west.

There must be accommodation for fourteen inhabitants, consisting of sitting-room, with cooking stove, scullery, coals, w.c., and one bedroom, and somewhere in the general plan a common reading-room and quarters for a single caretaker. The buildings generally to be two storeys in height

Drawings.—One-eighth inch scale plans, sections and elevations—2 sheets; ½-inch scale details—1 sheet.

Subject XXXVI.

(*a*) or (*b*) An Entrance Lodge to a cemetery. Accommodation required, two living rooms, three bedrooms, and office for superintendent.

Drawings.—Two plans, a section and two elevations all to ¼-inch scale. Detail of entrance to larger scale.

Small scale block plan required showing position of lodge in connection with cemetery entrance.

(*a*) or (*b*) Headquarters for O.T.C. at a large Public School.

Draft Condition.—The buildings, for an establishment of 400 infantry cadets, are to form a detached group, sited on a low plateau overlooking the playing fields, and backed by wooded hills. The lay-out is to be on broad and dignified lines, and to include a paved parade ground, about 7,500 yards super, colonnades, and sheltered areas. The following accommodation should be provided: Drill hall, c. 7,500 feet super; two lecture rooms; armoury, with cleaning-room and workshop; magazine; reference library; gallery for maps and models; miniature range; orderly-room; offices for C.O.; Coy. Commanders and Quartermaster; storerooms for tools, equipment, and materials; locker-rooms, shower baths, &c. Common rooms for Officers, Cadet N.C.O.'s and cadets; office for Sergt.-Instructors, and quarters for one married sergeant.

Drawings.—Plans, including lay-out and key elevations to 1/32-inch scale. Sections and elevation of main buildings to ⅛-inch scale. A sheet of ½-inch scale details.

Dates for Submission of Designs in 1917-18

	Subj. XXXIV.	Subj. XXXV.	Subj. XXXVI.
United Kingdom	31st Aug.	31st Oct.	30th Dec.
Johannesburg ...	31st Oct.	30th Dec.	28th Feb.
Melbourne ...	30th Nov.	31st Jan.	31st Mar.
Sydney	30th Nov.	31st Jan.	31st Mar.
Toronto... ...	30th Sept.	30th Nov.	31st Jan.

INCORPORATED CHURCH BUILDING SOCIETY.

THE Incorporated Church Building Society held its usual monthly meeting at 7 Dean's Yard, Westminster Abbey on Thursday, June 21. The Rev. Canon Edgar Sheppard, K.C.V.O., D.D., in the Chair. There were also present, Lord Colchester, the Revs. G. B. Vaux, A. G. Ingram and R. R. Powell; H. P. St. John, Esq., R. E. Bill, Esq., and the Rev. T. T. Norgate, F.R.G.S., F.R.Hist.S. (Secretary). Grants of money were made in aid of the following objects:—Building the new church of St. Margaret, Scotswood, Newcastle-on-Tyne, £160; and repairing the churches at Hanslope, St. James, Bucks, £50, and Anstey, St. James, Wilts, £60. A grant of £225 was paid towards the erection of the new church of All Saints, Easton, Isle of Portland.

Several applications were considered for aid towards erecting temporary mission churches and hostel chapels in certain munition areas, and a sum of money amounting to almost the total availability in the hands of the Society was voted for these objects. The Committee consequently most earnestly appeals for donations towards its Special Munition Areas' Fund, the demands upon which are becoming most pressing, and are of national importance. These mission churches and chapels will provide full church services and will be open for private devotion day and night.

HAMPSTEAD GARDEN SUBURB.

SUMMER MEETING.

UNDER the Presidency of Mrs. Barnett, supported by a strong committee, a summer meeting is being arranged for the first time in London this year, and will be held in the Hampstead Garden Suburb from August 3 to August 17. It is thought that many people, and especially those belonging to the teaching profession who cannot leave London for their usual holiday, will be glad to avail themselves of this opportunity for gaining mental and physical refreshment within easy reach of town.

Among the subjects to be considered are all the main problems of reconstruction whether religious, international, economic, or educational, and a strong section will deal with arts and crafts, under the presidency of Mr. Henry Wilson, with whom will be Sir John Burnet, Mr. George Clausen, Mr. Halsey Ricardo, Professor Lethaby, Mr. C. Harrison Townsend and other eminent authorities.

Addresses will be given by the following among many others: the Bishop of Oxford, the Bishop of Lincoln, the Bishop of Peterborough, the Dean of York, Canon J. H. B. Masterman, Principal Selbie, Sir Oliver Lodge, Mr. Creighton, Mr. Herbert Samuel, M.P., Lord Henry Bentinck, M.P., Miss Maude Royden, Mr. H. J. Mackinder, M.P., Lord Lytton, Lord Burnham, Mr. Sidney Webb, Mr. J. A. Spender, Miss Mary Macarthur. Lord Leverhulme has invited the members to an afternoon party, and there will be other excursions.

Apart from the conferences, the beautiful country surroundings and splendid air of the Garden Suburb make it an ideal spot for an invigorating holiday. Full particulars including proposals for outings and relaxation may be obtained from the Secretary, Miss Bolden, the Institute, Hampstead Garden Suburb, N.W. 4.

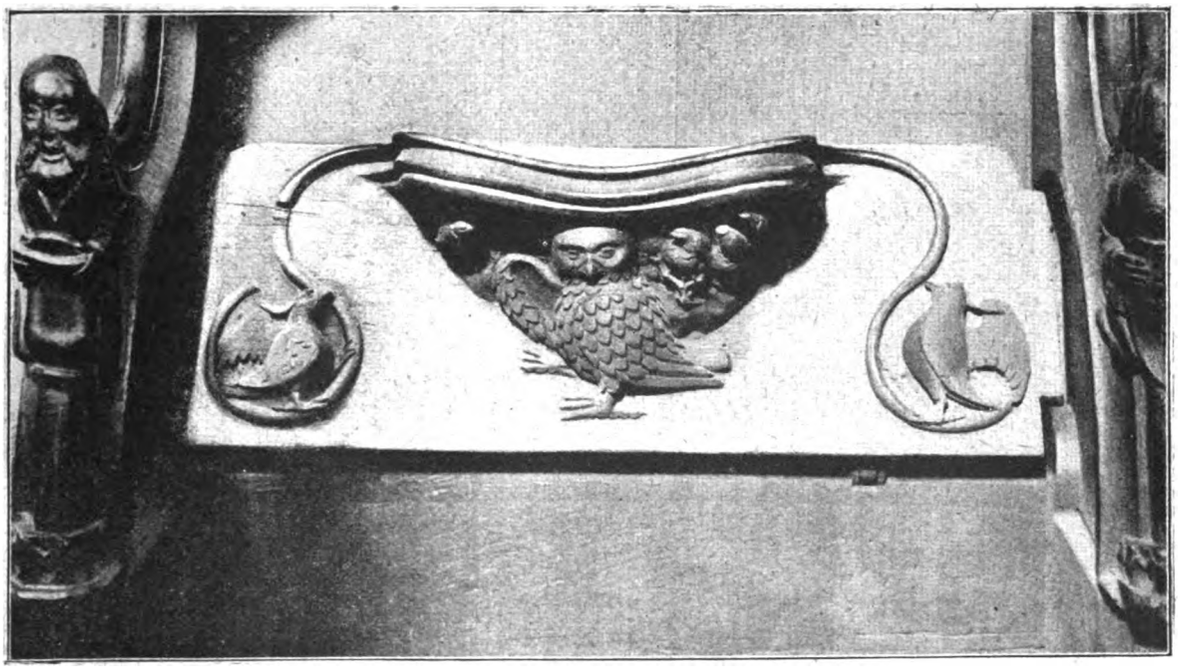
While many people may have arranged to take part in schemes for land work, there are others for whom it is hoped this effort may meet a need by bringing them into touch with vital problems of national life and international relations. Acting in this spirit the Committee have taken for motto of the Meeting "Where there is no vision, the people perish."

MR. ALFRED EDWARD WHITE, M.Inst.C.E., of Bournemouth, formerly of Wolverton, The Park, Hull, for twenty-eight years the City Engineer of Hull, retiring in October 1914, left his estate, amounting to £13,423 (net personalty £13,277), to his wife for life and then to his brothers and sisters, and £2,000 to his wife, desiring her to leave any part thereof not expended by her for charitable purposes.

A WAR memorial cross has been unveiled at Lanchester by the Rev. Canon S. Harris, of Esh Laude. The cross has been placed in the grounds of St. Mary's Roman Catholic Church, overlooking Kitswell Lane, and it stands over 20 feet above the level of the roadway. The cross itself is of Indian teak, and the figure of Christ is of oak. On the base are inscribed the names of Roman Catholics in the parish who have died for their country. The cost of the memorial has been defrayed by the Roman Catholics in the district.

LAVERNOCK HOUSE, situate on the cliffside between Penarth and Lavernock, has been purchased for use as a convalescent home in connection with King Edward VII.'s Hospital, Cardiff. The transaction was by private treaty, the hospital governors being represented by Major-General H. H. Lee and Colonel E. M. Bruce Vaughan, who have been supporters of the need for establishing such a home for some years. The purchase price is roundly £6,500.

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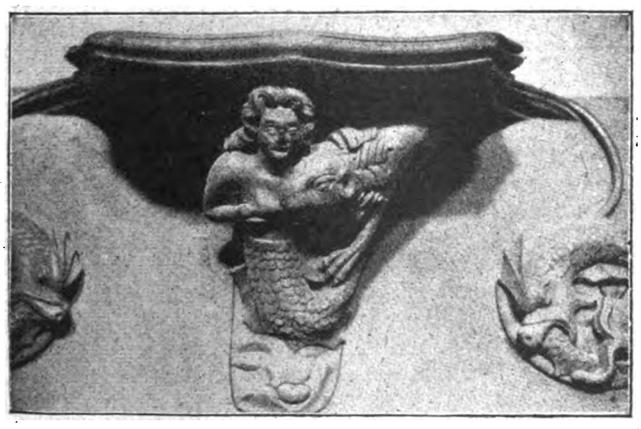
[Photograph by S. GARDNER.

AT NORWICH CATHEDRAL.

DESIGN AND DECORATION OF MISERICORD SEATS.

AT a meeting of the Royal Archæological Institute, held in the apartments of the Society of Antiquaries, Burlington House, Piccadilly, W., on Wednesday, June 6, Mr. G. C. Druce, F.S.A., delivered a remarkably interesting address entitled "Notes on the Design and Decoration of Misericord Seats," which was finely illustrated by lantern slides. Sir Henry Howorth (President of the Institute) was in the chair.

Mr. Druce said that what he had to offer was not a research paper but rather a demonstration, the object of which was to show first the chronological development of misericord seats, and, secondly, the way in which the decorative detail was arranged on them. He took it that everyone there was acquainted with the general character of choir-stalls, and the position that misericord seats occupied in them. The greater number of stalls were ranged along the north and south walls, a few (generally three or four) being returned at the west end—i.e. backing against the screen, and so facing east. Stalls prior to the fourteenth century are scarce; there were early stalls at Hemingbrough, Yorkshire, and at Anstey, Hert-



AT NORWICH CATHEDRAL.

fordshire, the latter dating from about 1300. Later stalls (fifteenth century) were so numerous that there was plenty of choice. Good stalls of this time might be seen at Edlesborough, Bucks, combined with a nice screen. An interesting foreign example of early sixteenth-century date was shown from the church of St. Marcel, near Argenton-sur-Creuze.

Misericord seats were hinged and had a ledge projecting from the underside. When the seat was raised the ledge afforded a convenient support to the body of a standing man. Some such support was needed by aged and infirm monks during the long offices, hence their name from the

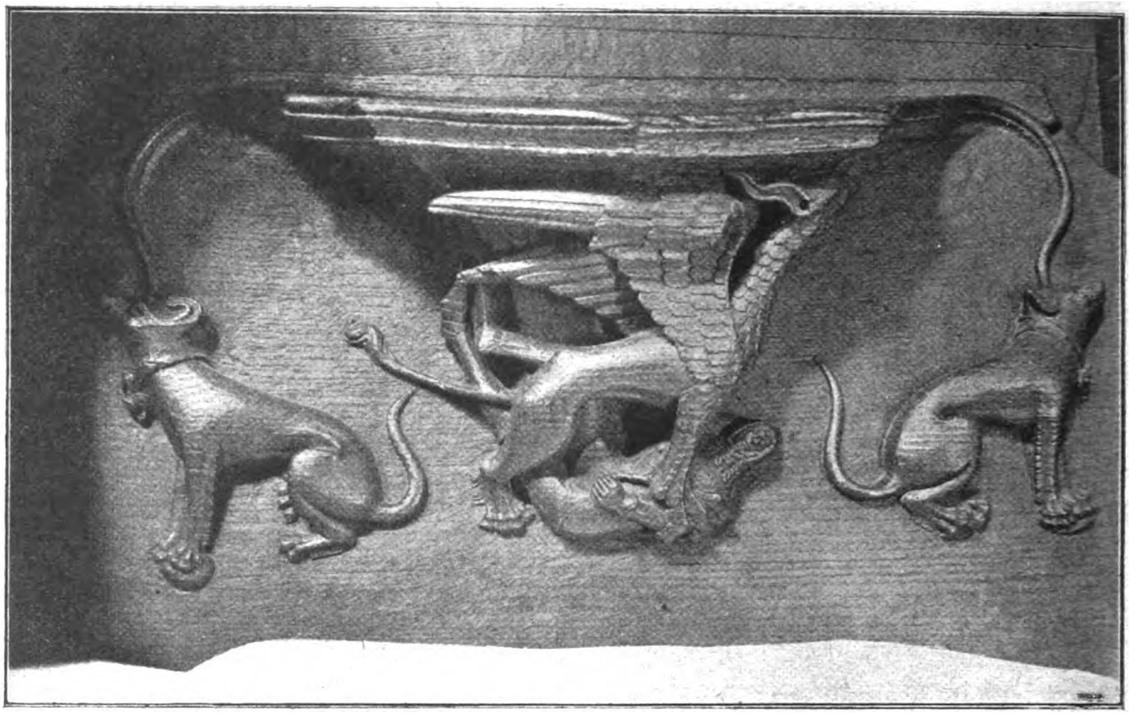


[Photograph by FRED H. CROSSLEY.

AT HEMINGBOROUGH.

Latin "misericordia." The sides of the divisions between the stalls were cut out in the form of a quadrant, within which the ends of the seat revolved, the base of the recess providing a firm bearing for the board, to take the sitter's weight. The under side of the seat was usually carved with either foliage or figure subjects, and therefore formed an important decorative feature. From that fact they might conclude that the seats were intended to be raised when not in use. Not much effort was needed to sit down in a seat, but it was a different matter when one wanted to get up, especially if old or infirm, so arm or hand rests were provided. Support in this way was first gained by the curve of the projecting division, but afterwards "elbows" were added, and these were also the subject of decoration which harmonised with that of the misericords. This decoration, composed of either foliage or figure subjects, was not allowed to interfere with the utilitarian purpose of the arm-rest, as it was practically always round and smooth on the top. The manipulation of figure subjects to meet this requirement was often very clever, the curve of the head or back of an animal or of a leaf being made to serve. In the same

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[Photograph by FRED H. CROSSLEY.

AT CHESTER CATHEDRAL.

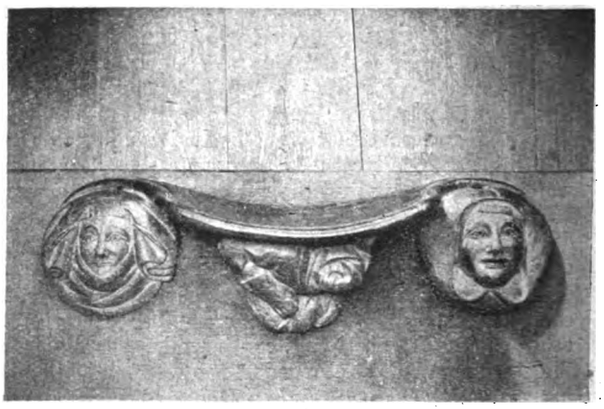
way, when standing, support for the arms was gained by the flat top of the division between the stalls, but, exceptionally, at Balsham (Cambs.), where the construction differed, an upper tier of richly carved arm-rests was provided.

The design of misericords varied with the period, the difference being mainly in the plan of the ledge. The oldest misericords we had were of the thirteenth century. At that time the front of the ledge took a simple elongated convex form, the depth of the projection being four to five inches in the centre. Misericords were found at this period both with and without side (or wing) ornamentation. Mr. Druce showed an example at Anstey without wing subjects, and said the misericords there were interesting as the ledges were not under-cut but left full, and the subjects on them appeared as if applied to the surface. In the case of misericords with wing ornamentation the rounded edge or moulding of the ledge was extended, first sideways, then downwards, forming a connecting stalk for the wing subject. This stem or stalk might be so little developed in early misericords as to be scarcely visible, for example, on the single surviving misericord at Hemingbrough. At Exeter Cathedral the wing foliage



AT EXETER CATHEDRAL.

on the thirteenth-century misericords had stems varying in length, but in no case as long as in later work. The occurrence in this country of a few misericords of early date without wing subjects raised an interesting question, for they were practically universal on the Continent. Maeterlinck illustrates some of the thirteenth century at Hastiere, and of the fourteenth century at Liège, but the majority were late. The only exception that Mr. Druce knew of was at Albi Cathedral, where out of 120 miseri-

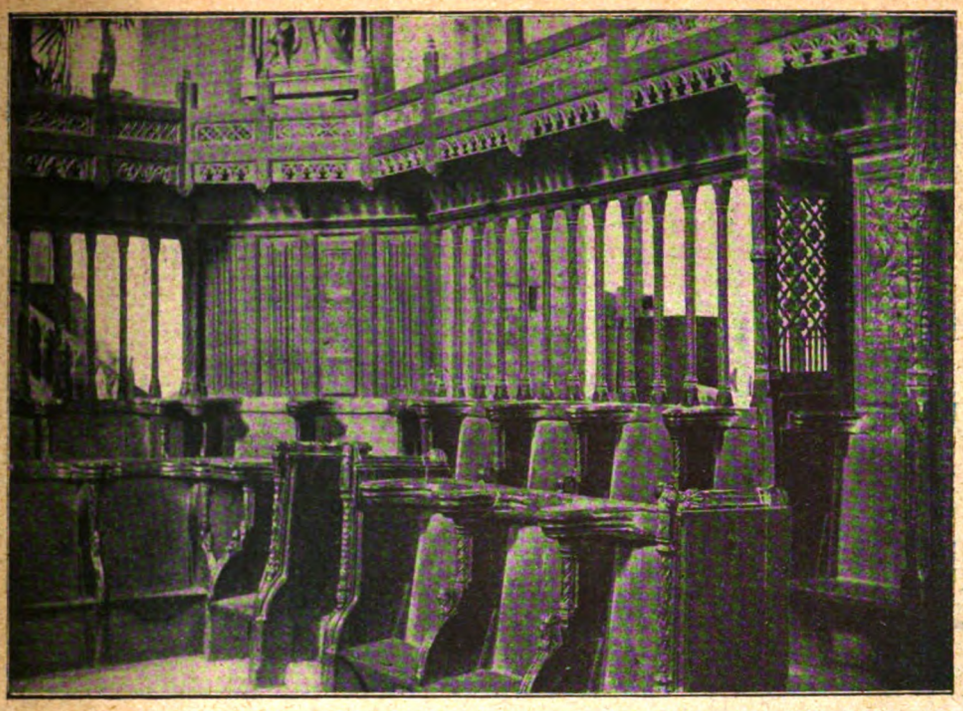


AT WINCHESTER CATHEDRAL.

cords 37 had small wing carvings. They were about 1500 in date. At Minster, Thanet, one misericord differed from all the rest, and somewhat resembled those at Albi in design. Illustrations of foreign examples were shown. Maeterlinck illustrates stalls at Ratzburg of the twelfth century, showing misericords without wings, and Mr. Druce suggested that if we could go back to the beginning of our English misericords we might find they were all of the same simple character as those on the Continent. We had, however, nothing to go by earlier than the thirteenth century, and could not positively say that there were any in existence in the twelfth century, but if there were one could not help wondering what they were like, and whether our misericords generally were introduced from abroad. The prevalence of wing carvings here was at any rate an argument in favour of our misericords having been carved by native craftsmen.

With the change from the thirteenth to the fourteenth century the first modification appeared in the plan of the ledge. The front became flatter and the sides were pushed in, with the effect of forming a pair of shallow foliations. The ledge was also hollowed out on the top. The change might well be seen at Winchester Cathedral, and the new design was generally current

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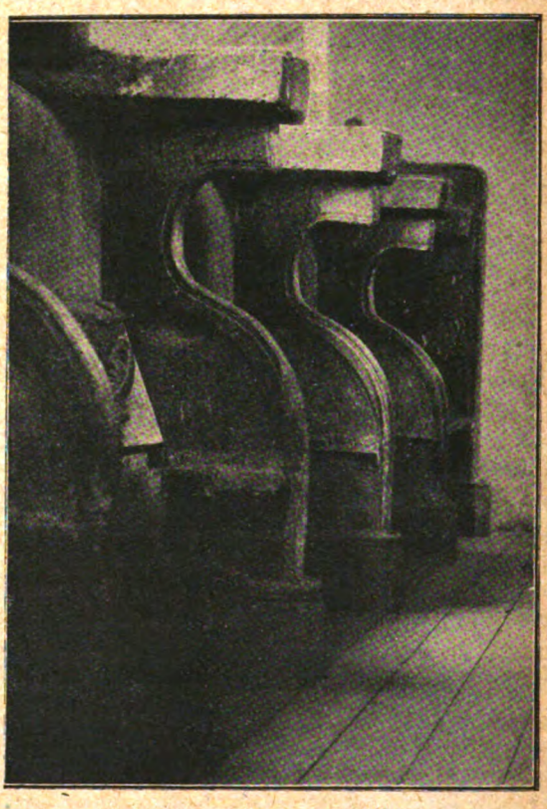
AT ST. MARCEL, NEAR ARGENTON-SUR-CREUZE.

until past the middle of the fourteenth century. Winchester misericords were well carved, and were remarkable for the small size of the centrepieces. At Wells, where they dated from about 1330, the ledge was of much



AT WINCHESTER COLLEGE CHAPEL.

the same form. The centrepieces were larger than at Winchester, but the wing subjects at both places were close to the ledge. The work at Wells was beautifully executed and naturalistic in style, but some of the figures lacked strength. There were two sets of misericords of the early part of the fourteenth century at Chichester—at St. Mary's Hospital and in the cathedral. At St. Mary's the ledges were of the usual fourteenth century type, with the sides pushed in, but they had to note the development of the stalk and the small size of the wing subjects, as in some of the thirteenth century examples. The workmanship was also very good. At the cathedral the design was much the same, but the wing subjects were closer up. There were certain correspondences in the figures at both places, but they could not have been by the same hand. At Ely Cathedral, nearer the middle of the century, the chief thing to note was the way in which the ledge was undercut, creating a very deep shadow, and consequently the figures stood out in high relief. The misericords at Ely were well carved, with much fine detail. Passing to the earliest of the misericords at Norwich Cathedral, the date of which Mr. Druce said he should put at 1365-70, he remarked that there was a further modification in the ledge, involving an increase in the hollow curve of the front, but the latter was still broad. These misericords formed a stepping-stone to the next that he showed, and which introduced a more decided change, corresponding with a transition period in architecture. They were at Etchingham Church, the date of which was approximately known. It was built by Sir William de Etchingham, who died in 1388, and the chancel was probably finished about 1365. The shape of the ledge here closely agreed with Norwich, but, in addition, there was a small point in the centre of the front. It



AT ANSTEY, HERTS.

was therefore divided into two parts, forming two foliations in addition to the two at the sides, the corners remaining unaltered. Combined with this, the mullion in the window tracery of the misericord shown on the screen was continued straight up to the head, so that it was verging towards the perpendicular. This breaking

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up of the ledge into a number of foliations led naturally to the introduction of coving, for up to this time the under surface of the ledge had been simply sloped off. Showing an illustration of one of the second group at Norwich Cathedral, depicting Samson and the lion, Mr. Druce observed that it was not much later than the others at Norwich, but there was a distinct difference in the ledge, for it had a decided point in the centre of the still broad front. What was more, the round corners had given way to small foliations, so that the ledge was now practically sexfoil. He should put this group at about 1380 in date, and they might well have been by the same hand as the first. At Lavant, Sussex, there was the same type, with six foliations, but with the front still broad. The coving was distinct, and the centre-piece was placed at the foot; this had the effect of keeping the carved subject on the small side. As they proceeded the plan of the ledge became more or less stereotyped, and there were many examples. The breadth of the corner foliations tended to increase at the expense of the front, which became narrower. Lincoln afforded an example, and, judging by the provision made by John de Welborne (Treasurer, 1350-80), the misericords there should date about 1380. Chester followed Lincoln not long after in date, and there was correspondence both in subject and style. An illustration from Chester, showing more equal foliations, depicted the legend of the Unicorn. On later misericords equality of foliations sometimes became quite pronounced, as at Godmanchester. The coving there was very marked, and the carved subjects were low down. Another good example of equal foliations and distinct coving was to be seen at Stratford-on-Avon, the date being late fifteenth century. At Balsham, also, the foliations tended to be equal, and it had to be noted that the moulded edge frequently became deeper and richer in the later misericords. At Throwley, Kent, there was a good moulding, quite Perpendicular in style, and at Manchester, where the misericords were late (1508), the moulding was deep. At Beverley Minster, again, the ledges were enriched with a scalloped ornament, while at Bristol Cathedral, where the misericords were of the sixteenth century, the mouldings were deepest of all.

(*To be concluded.*)

A GREAT CENTENARY, AND A WAY TO OBSERVE IT.

By LINDLEY LATHAM.

THE present year will see the hundredth anniversary of the birth of John Loughborough Pearson, church architect.* Having stated this fact, which is the principal excuse for the present article, we shall not deal further with the events of Pearson's life, as these are easily accessible in works of reference, and are not perhaps in themselves of any wide interest. We shall not attempt, either, to give any general review of his works. Our object is to urge all who have not made a close and recent study of these to visit this year such of them as opportunity may allow. Accordingly we shall describe a group of churches which lie within the reach of a large proportion of our readers, and which will call for many remarks applicable to other examples of Pearson's design. The churches in question are two in the county of London —viz., St. Peter's, Vauxhall, and St. John's, Red Lion Square, and two in the adjacent county borough of Croydon—viz., St. Michael's, West Croydon, and St. John's, Upper Norwood.

Before dealing with these buildings separately, we must say a few words by way of general introduction to them. Now probably most readers, whether professional or not, will think of them merely as works of a prominent architect of the Gothic revival, gifted with a somewhat higher degree of originality and refinement than most of his contemporaries. But they are more than this, for while the Gothic revival as a whole is dead, and many of its products are not only dead, but deadening to all life around them, the churches we are about to describe are, quite apart from the activities connected with them, living forces for the uplifting of the community. In other words, they make an appeal to the higher emotions, and thus possess the really essential quality of great architecture. They have this quality, the Gothicist will say, because their designer was deeply imbued with the true Gothic spirit. No, the Classicist will reply, it is because genius has triumphed over an unnatural medium. For ourselves, we should be ready enough to admit the absurdity of thirteenth-century forms for a present-day church, only—the final test of artistic theories and methods must be by their results. And among modern churches designed on quite different principles from those of Pearson, what is there so wholly satisfying to any sensitive and unbiassed mind as the interior, say, of St. Peter's, Vauxhall, or St. Michael's, West Croydon? Let the reader judge for himself; and, if he is a Londoner, visit or revisit the buildings which are noticed in chronological order below.

St. Peter's, Vauxhall, consecrated as long ago as 1864,* though not Pearson's first London church, is the first in which his original talents are clearly displayed. It is a rose among thorns, hidden away in a poor and crowded neighbourhood; but it is easily reached from Vauxhall Cross by a few minutes' walk along Lower Kennington Lane, when it will be found on the left-hand side of that thoroughfare, the ritually "west"—really south—front abutting on the street. Grimy, unfinished, and severely designed in yellow brick, the exterior is almost as depressing as its surroundings; but pass through the narthex porch, open the unlocked door, and what a treasure of beauty is revealed to you! Among London parish church interiors it ranks, in our opinion, second only to St. Bartholomew-the-Great for austere sublimity. Both churches are apsidal, round-pillared, smoke-grimed, both have negligible exteriors; but here the resemblance ends. The detail of St. Peter's is early Continental Gothic; the material of the walls and the masterly vaulting brick; the apse without ambulatory, and its narrow windows filled with remarkable stained glass. The brickwork, vilely blackened without, has been toned within by the slow percolation of soot through doors and windows to really beautiful shades, which contrast finely with the jewel-like stained glass in apse and baptistery. This glass, by Lavers & Barraud, from designs by Westlake,† has doubtless merits in detail as well as in general colour effect; but, frankly, it is only of the colour effect that one thinks, and this is so absolutely right, so much a part of the architecture, that one would be satisfied even if it were produced by a meaningless jumble of fragments. Would that the same could be said of modern glass more often! And would that modern stone-carving, whether inviting close inspection or not, more often repaid such inspection—as it does at St. Peter's, Vauxhall, in the nave capitals. Here, in place of the usual lifeless "conventional foliage," one finds ranges of tiny full-length figures in niches, charming both on the near and distant view.

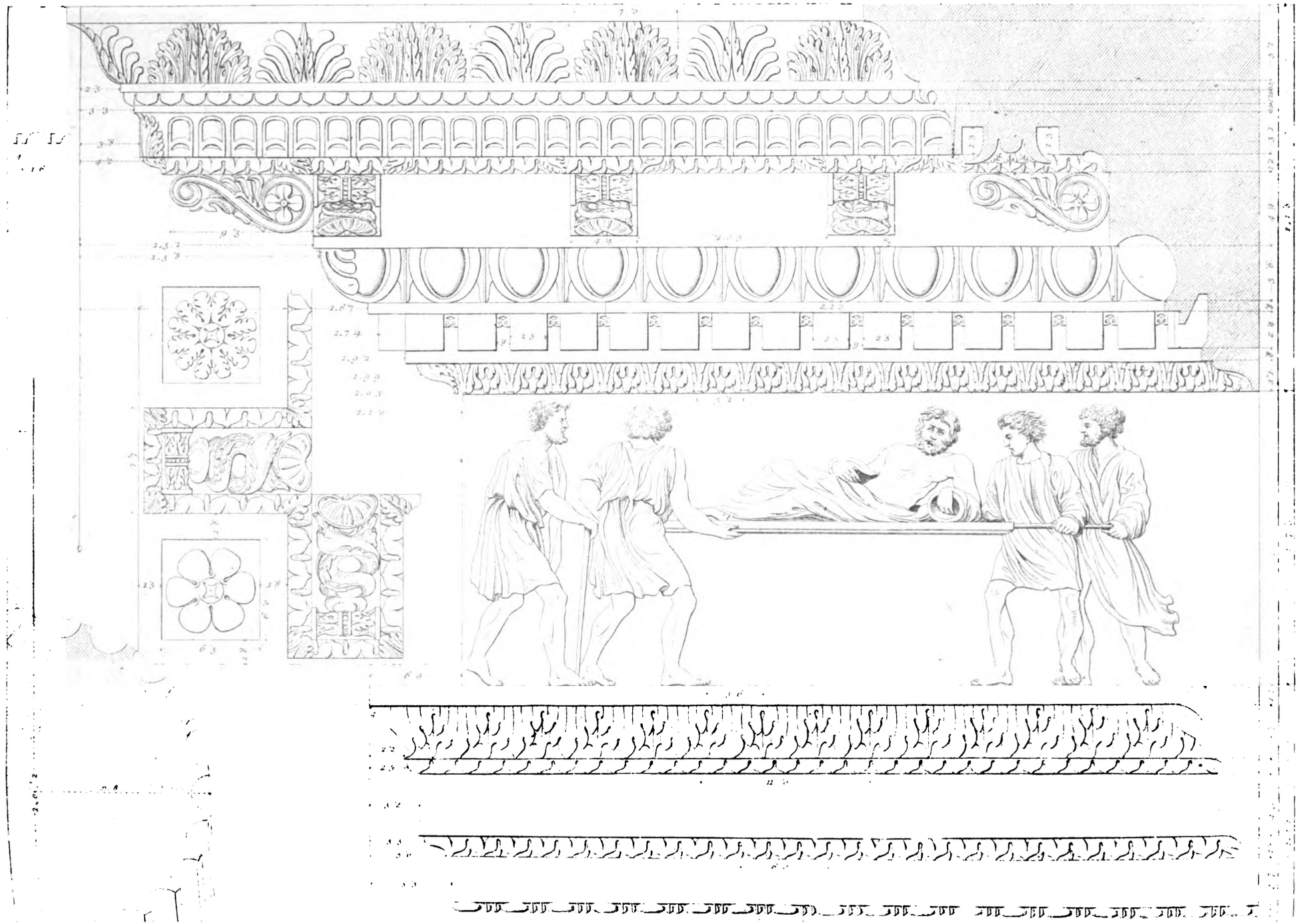
Regretfully we must leave St. Peter's and glance at a building consecrated fourteen years later‡ in a district familiar to a much wider public. St. John the Evangelist, Red Lion Square, Holborn, of course displays maturer powers of its architect than St. Peter's, Vauxhall, and has many features of beauty all its own; nevertheless, it is impossible to accord it the full measure of praise which has been given to the earlier work. Its

* He was born in Brussels on July 5, 1817. "Encyclopædia Britannica."

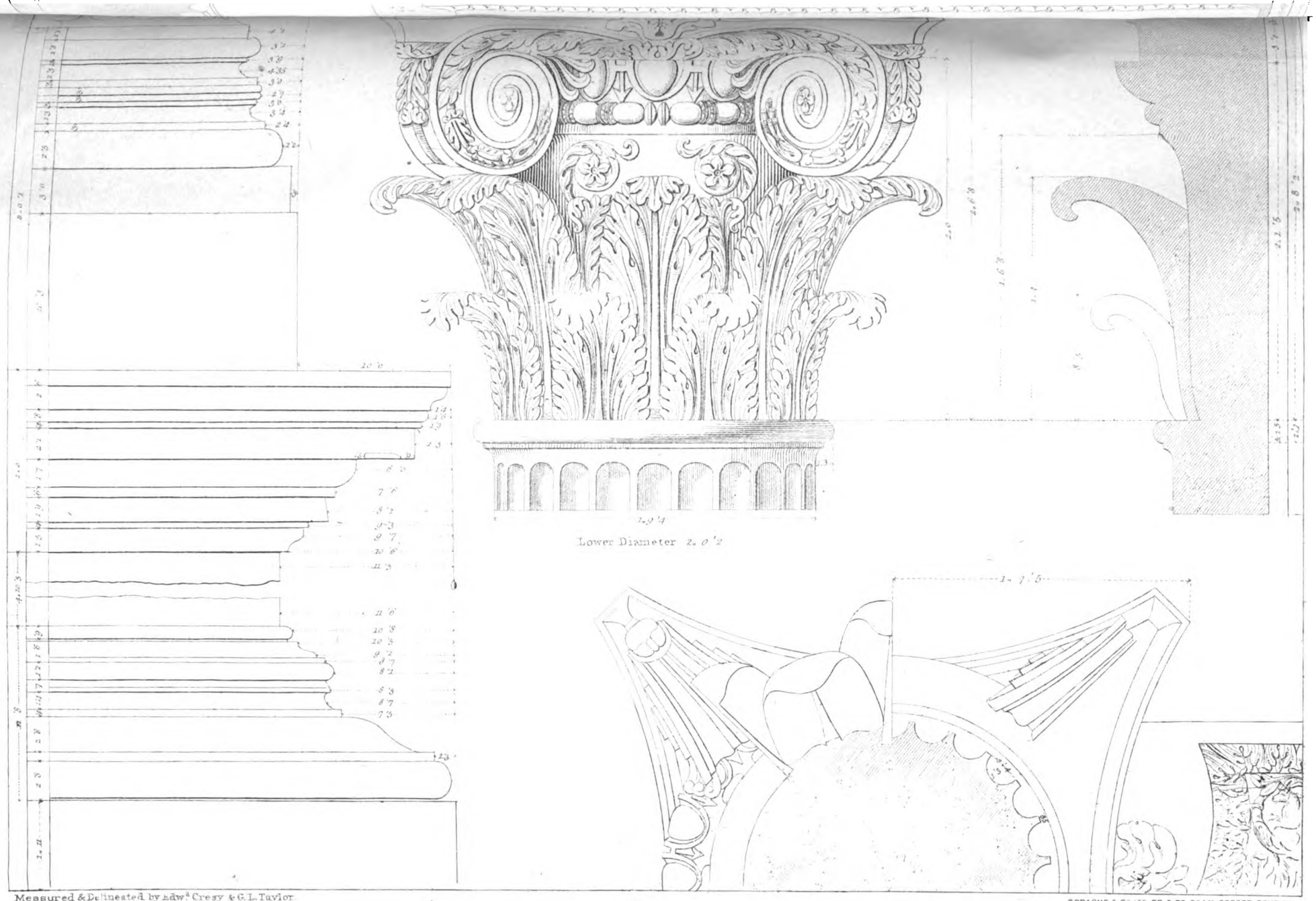
* Bumpus, "London Churches, Ancient and Modern."
† Bumpus, *op. cit.*
‡ February 1878.—Bumpus, *op. cit.*

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ARCH OF TITUS, ROME.

DETAILS OF ORDER, BASE &c.

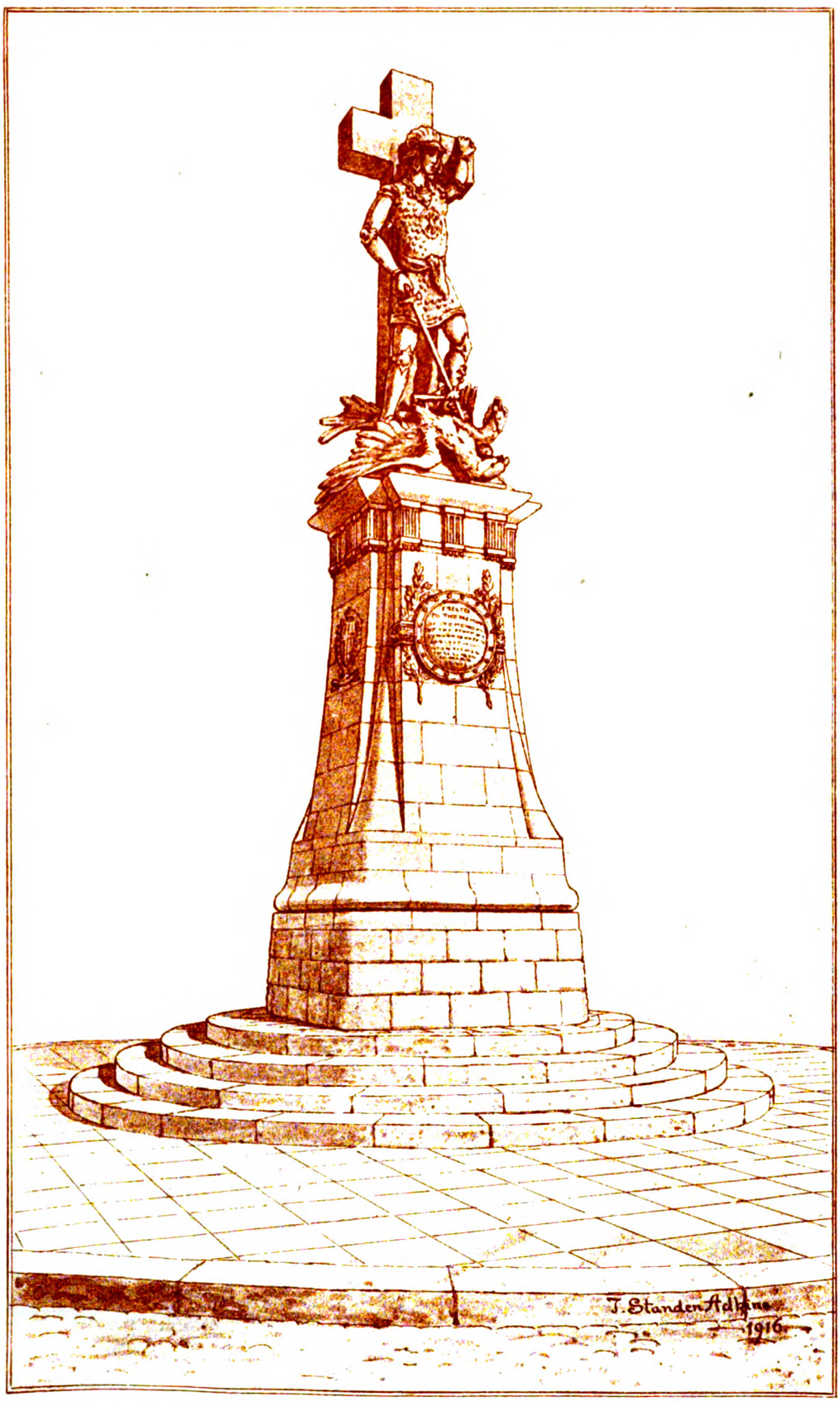
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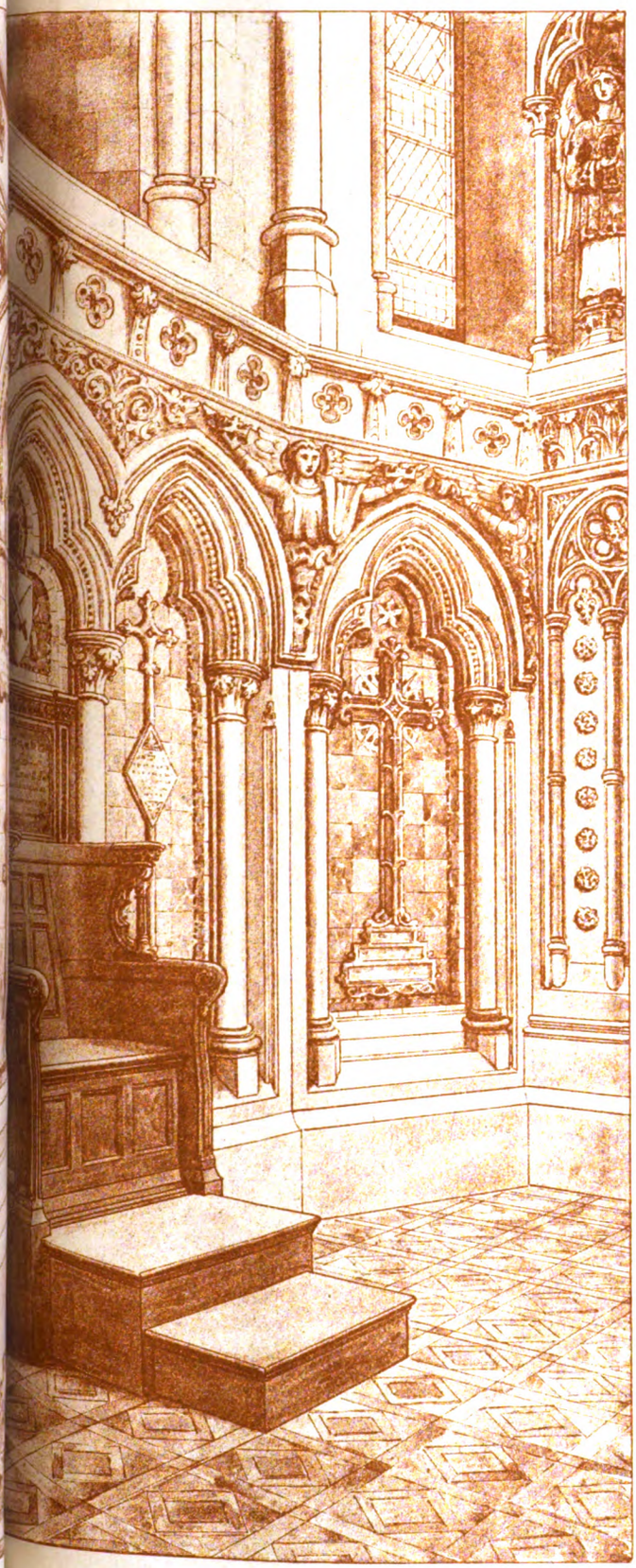


COMPETITION DESIGN FOR WAR MEMORIAL AT THE NEW COUNTY HALL, LONDON.

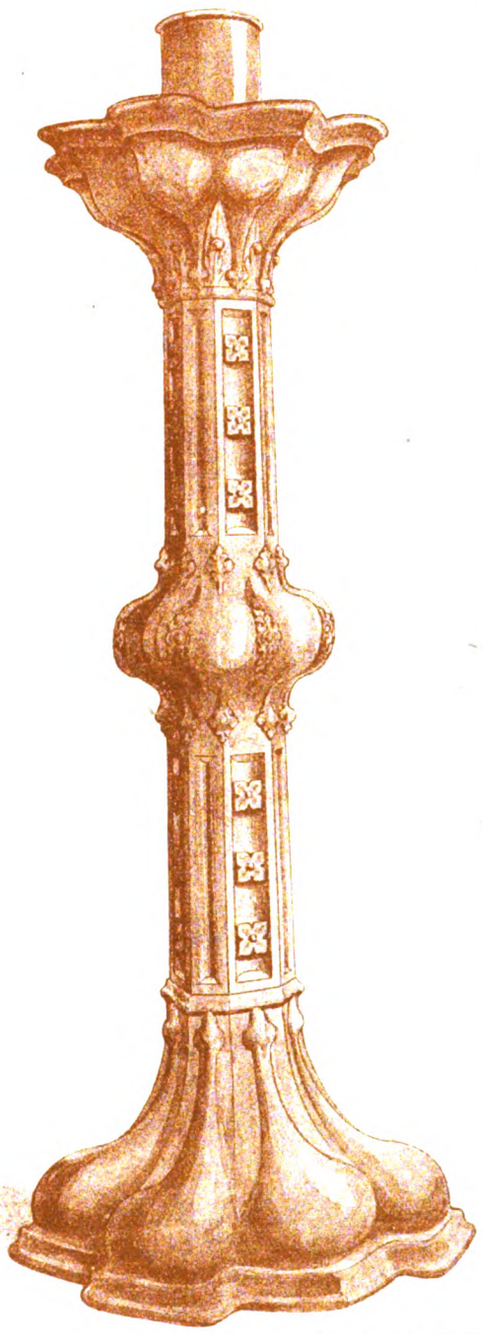


BISHOP'S STALL, WALL ARCADE AT

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Church of S. Peter
Hornsey
Altar Candlestick.



J. Standen Adkins
Archt
1917.

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ALTAR CANDLESTICK. CHURCH OF S. PETER, HORNSEY.

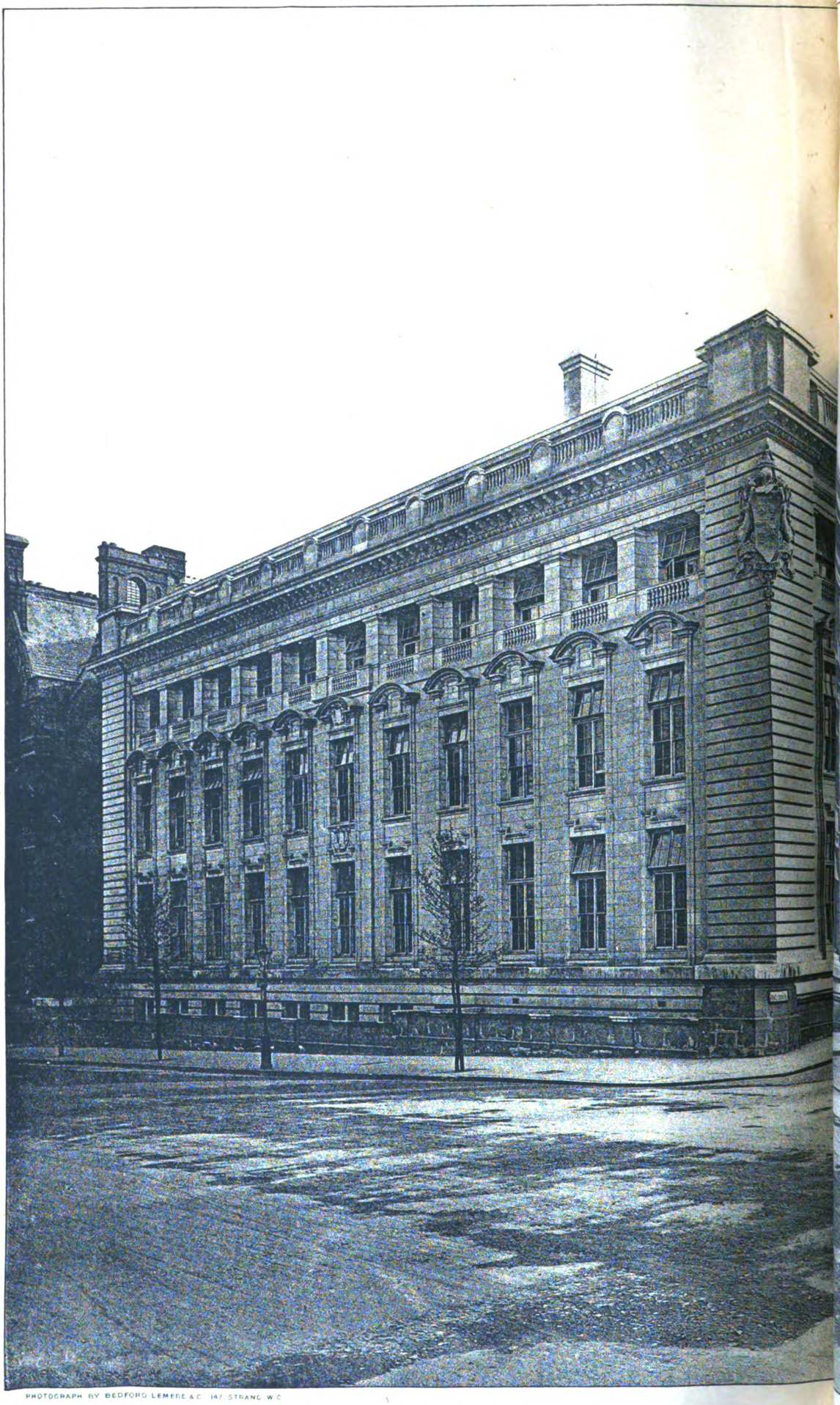
EMORIAL PANELS. CHURCH OF S. JOHN BAPTIST, KENSINGTON.

M. J. STANDEN ADKINS, ARCHITECT.

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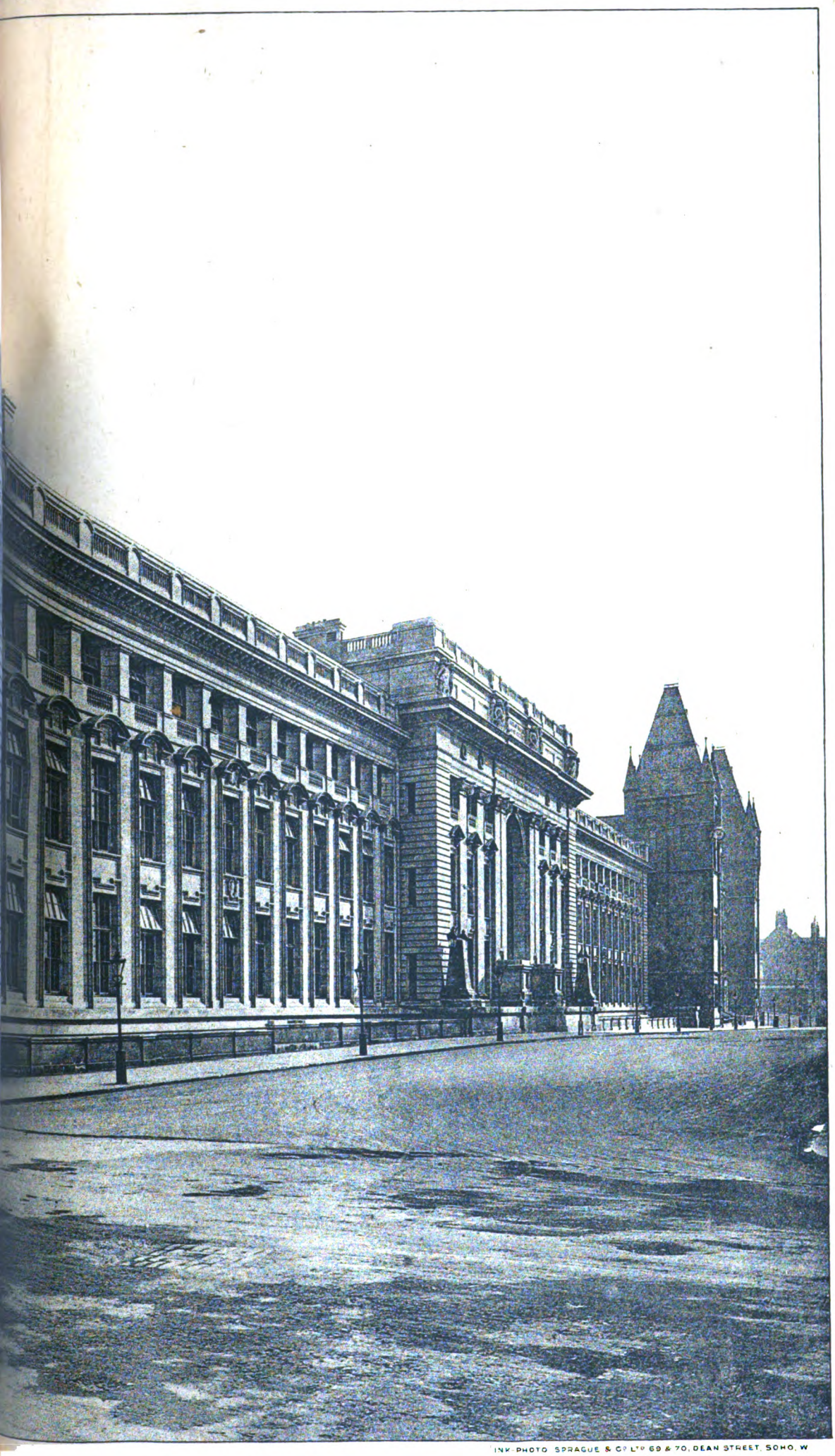
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SOUTH KENSINGTON.

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greatest attraction is as an example of highly specialised planning for an irregular site. Like all true architects Pearson loved to turn practical difficulty into æsthetic interest, and here he certainly carried the principle to an extreme point. How far the result is successful must be judged by the reader from the building itself. For our own part, it is to an indirect outcome of the plan that we chiefly take exception—viz., the two returned nave bays flanking the chancel arch. These, with their triforia and string-courses, seem to contradict the aspiring lines of the chancel arch, and even the continuity of the eastern and western portions of the church—that continuity so beautifully expressed above in Pearson's ever happiest element of construction, the vaulting. The effect of the returned bays is unpleasant, because one feels that it is un-Gothic; and they form with the walls of the chancel a conspicuous external angle similar to the angles at the crossing of a typical Gothic cathedral, which are decidedly the least satisfactory features of such structures. To sum up St. John's, it is, like St. Peter's, Vauxhall, and the two churches still to be described, built internally of stone and white brick; unlike St. Peter's, but like St. Michael's, Croydon, and St. John's, Upper Norwood, it is faced externally with red brick, the style is Early English, and the exterior is an important part of the design. In this case the east elevation is almost all that is seen, but the architect has made much of the square chancel and aspidal Lady chapel, In the turrets flanking the latter a curious detail should be noticed—namely, the tiny lancet windows, seen from within the church, and filled with stained glass.

Let us journey next to Croydon. Arriving either by road or rail at West Croydon Station the visitor will hardly need to inquire for the church of St. Michael and All Angels, Poplar Walk, for its high tiled roof, surmounted by a verdant copper flèche, and the two square stone-spired turrets flanking the apse, are conspicuous objects above the surrounding houses. Flèche and turrets form a group of much dignity; and one regrets that these must inevitably lose a great deal of their importance when the lofty south-west tower and spire are built. Once it is completed the tower will probably be in itself a compensation for the eclipse of the other crowning features, but in its present state it does little but mar some of the best views of the church. The composition of the east end, however, with its cleverly supported square turrets nicely counteracting the weak tendency of the circular apse, and its Lady chapel ending, intermediate between the square and circular forms, and harmonising with both, is easily appreciated. As a whole the exterior is the finest among our four examples, and the interior; if surpassed by St. Peter's, Vauxhall, in solemn grandeur, certainly holds the palm for lightness and grace. It should be particularly noted that practically no use is made of carved ornament; and from the results here achieved we may infer that under capable direction the simple continuous mouldings of a period as refined as the Early English can be reproduced by modern methods without much loss of their original spirit or incongruity with present-day surroundings. But we know that when archaic ornament is attempted failure is almost certain; and we can find a small but instructive instance of such failure in the doorway of St. Michael's by which the visitor will probably enter—that at the north-west. Among the external arch-mouldings the dog-tooth ornament is introduced. It is, of course, mechanically regular and insensitive; thus the loss of its original spirit, and its incongruity with present-day surroundings, are both keenly felt. And if it were deliberately made irregular, it would be still more incongruous, and just as spiritless. . . . But let us enjoy the beauty of the view from the extreme west end, through the arches of the delightful internal narthex formed under the stone west gallery; and, above all, the poetic conception and ingenious planning of the Lady chapel. We would urge all our readers to examine the plan of the whole church minutely, and will conclude our remarks upon it by saying that, were anyone to have no opportunity of seeing an adequate example of genuine thirteenth-century work, he might still, if he were permitted to enter St. Michael's, West Croydon, receive a large part of the wonderful silent message of Gothic architecture.

Now for the last church upon our list—that of St. John the Evangelist, Auckland Road, Upper Norwood. The first portion built was consecrated in 1882,* and, being placed in a district but little infected by smoke, the whole structure has still a certain air of newness about it. Standing on the edge of a hill overlooking slopes which even now bear considerable remnants of the old "North Wood," it has a fine situation, and is imposing from its bulk; but, more than in any of the other cases we have noticed, the composition depends for a satisfactory general effect upon the completion of the tower. As usual, the lower stage is built (and in this case forms the south transept), but the upper stages are imperatively needed to balance the tall square western turrets and to break up the long, continuous roof line. At present the west front is the best feature of the exterior: the narthex porch is unusual and pleasing, and the flanking turrets, set a good way back from the west wall, are characteristically Pearsonian, both in their form and their connection with the planning of the entrances. When one comes to examine this connection from within, one admires the skilful arrangement of the vestibules and baptistery, yet feels it is a little over-elaborate, especially as it provides no direct main doorway into the church, but only a pair of entrances leading rather circuitously into the aisles. Something of simplicity and dignity has been sacrificed, but an undoubted charm and mystery of effect has been gained. The aisles into which one is conducted, wide and flat-roofed without, are seen to be double within, being each divided by and vaulted from a central range of slender pillars. They are decidedly *the* feature of the interior; and, indeed, the rest of the structure calls for no special remarks; we need only direct attention to the stone chancel screen, a very creditable piece of work, and to the stained glass in the eastern group of lancets, uncommon and refined (though scarcely effective) in colouring.

Our office as guide being now ended, we will relinquish to the reader that of architectural philosopher, and close our discourse with the expression of a heartfelt hope, viz., that the coming of the Great War may hasten, and not delay, the completion of the four unfinished towers of the four churches we have been considering. We trust that the scarcity of funds which must exist when the war is over may be more than counterbalanced by a greater readiness to make sacrifices for civic dignity and the honour of the Deity; and that the claims of buildings such as these to be completed as memorials to our fallen heroes will not be overlooked.

REMOVAL OF BOARD OF EDUCATION OFFICES TO SOUTH KENSINGTON.

WE are informed that the transfer of the offices of the Board of Education to a part of the premises of the Victoria and Albert Museum will take place during the first week in July, and will, it is hoped, be complete by Monday, July 9.

It is requested that no communications which are not of an urgent character may be addressed to the Board between Thursday, June 28, and Saturday, July 7, and that any urgent communications may be plainly marked "Urgent" on the cover, as if this precaution is not taken it is impossible to guarantee that they will receive early attention. Such communications should be addressed to the Board at Whitehall.

On and after July 9 the work of the office will proceed as usual. From that date the official address of the Board will be at the Victoria and Albert Museum, Exhibition Road, South Kensington, London, S.W. 7.

* J. C. Anderson, "The Great North Wood."

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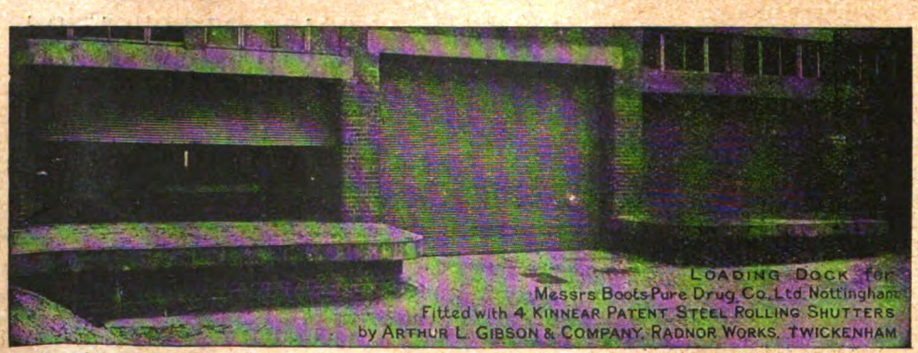
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Visitors having personal appointments with some of the administrative officers may be asked to approach their rooms by the east entrance. This is reached by the gateway in Cromwell Road, close to the Brompton Oratory. It is close to the Brompton Road Station of the Piccadilly Tube Railway.

The President, the Parliamentary Secretary, the Permanent Secretary, the Permanent Secretary of the Welsh Department, and the Chief Medical Officer will continue to occupy rooms in the Board's present offices in Whitehall, and here, unless otherwise notified in particular cases, deputations will be received by them and personal appointments will be kept. Personal letters to them may be addressed to Whitehall. Telephone No.: Victoria 6082.

The Medical Branch of the Board is already housed in Cleveland House, 19 St. James's Square, London, S.W. 1. Telephone No.: Regent 3410. Visitors whose business solely concerns the Medical Department should call here.

With these exceptions, the whole of the Board's administrative staff will be housed in the Victoria and Albert Museum.

BUILDING PROGRESS IN THE PROVINCES AND SUBURBS.

A LIST OF WORKS PROJECTED OR COMMENCED.

(N.B.—Local Authorities, architects, and others are invited to submit full particulars for insertion in this weekly list. Where districts are not entered against names of architects and builders, the address is, as a rule, local.)

ENGLAND

BUCKINGHAMSHIRE.

Chalfont.—Epileptic Colony: additions.

DURHAM.

South Shields.—Proposed offices and stores, Commercial Road and Windmill Hill, for Messrs. G. T. Grey & Co.

ESSEX.

Laindon.—Baptist Church: extension.

HERTFORDSHIRE.

Cheshunt.—Smallpox hospital. Mr. J. E. Sharpe, Council surveyor.

KENT.

Tonbridge.—Electricity works: extensions (£17,000).

Wye.—Bungalow, for Mr. J. W. Stanley.

LANCASHIRE.

Rochdale.—Eighteen houses, New Bath Lane and Bosworth Street, for Mr. T. Dewhirst.

Works, Castleton: extensions for Messrs. J. Ormerod & Sons.

St. Helens.—St. Mary's Church: proposed rebuilding.

MIDDLESEX.

Yiewsley.—New buildings, for the Power Plant Co., Ltd.

SOMERSET.

Yeovil.—Three houses, Addlewell Lane: rebuilding for Mr. J. G. Allen.

STAFFORDSHIRE.

Wolverhampton.—Addition, Goldthorn Hill, for Mr. H. Fallon.

No. 227 Lea Road: additions for Mr. A. H. Benton.

Warehouses, Dunstall Hill House, for Messrs. J. & H. M. Jenks.

Workshop, Sidney Street, for Greiseley Engineering Co.

WARWICKSHIRE.

Foleshill.—House, Spring Road, for Miss A. Shakespeare.

Six villas, Brindle Avenue, Stoke, for Copsewood Cottages, Ltd.

WILTSHIRE.

Swindon.—Victoria Hospital: proposed extension and enlargement.

Southern Laundry: additions. Messrs. Bishop & Fisher, architects, Regent Circus.

YORKSHIRE.

Bridlington.—Council offices: additions. Council architect.

Doncaster.—Infirmary (Peake Memorial).

Halifax.—Proposed electricity station, Copley (£250,000).

Huddersfield.—Twenty-two houses, Bradley. Mr. K. F. Campbell, Borough engineer.

Sheffield.—Alterations, Bailey Lane, for Messrs. J. & Riley Carr.

Offices, Vulcan Road, for Messrs. Hadfields, Ltd.

Additions, Savile Street East, for Messrs. W. Griffith & Sons, Ltd.

Alterations, Gower Street and Sutherland Road, for Messrs. Kayser Ellison & Co., Ltd.

Garage, Mylnhurst Road, for Mr. H. Hampton.

Warehouse, Neepsend Lane, for the Sheffield Steel Rolling and Manufacturing Co., Ltd.

Workshop, Forncett and Atlas Streets: additions for Messrs. Moorwoods, Ltd.

WALES.

Carnarvon.—No. 35 Bridge Street: addition for Messrs. Boots.

Garage, Crown Street, for Messrs. E. Davies & Son.

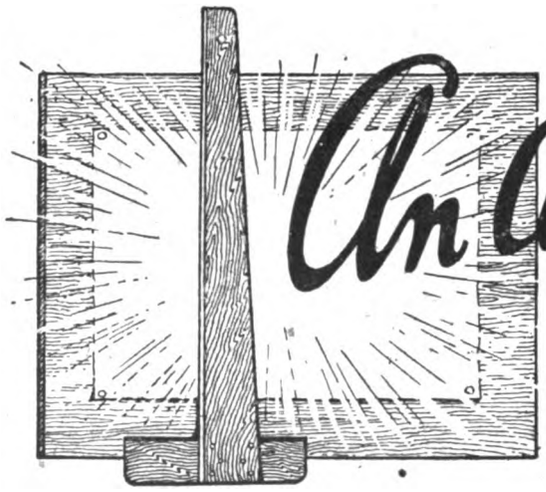
THERE is no further opposition to the Blackpool Improvement Bill, which is now passing through the House of Lords, and will shortly receive the Royal assent. The Bill provides for the amalgamation of the adjoining district of Bispham, and the expenditure of over £300,000 on new promenades, two large swimming pools, &c.

WITH reference to the proposed scheme for the improvement of the Hard at Gosport and the construction of a wharf at Harbour Row, which has been submitted to the Admiralty with a view to execution after the war, the Local Government Board have asked the Urban Council to submit the details of the schemes, so that, in the event of their being approved by that department, there should be no unnecessary delay in the borrowing of the necessary money when the present restrictions are removed.

CAPTAIN JOHN BASIL ARMITAGE, Cheshire Regiment, is reported killed on May 17 by a stray shell. He was the eldest son of Mr. W. Armitage, of Altrincham, one of the best-known Congregational laymen in Lancashire and Cheshire. Captain Armitage was an architect before joining the Colours. He leaves a widow and three children.

MR. H. FOX HILL, who has been appointed surveyor to the Frimley District Council, will take up his new duties at the beginning of next month. He has been surveyor and inspector to the Ware Urban District Council, Hertford, since 1906, and was formerly for fourteen years assistant at Northampton, and for seven years assistant at Ilford.

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THE
Architect and Contract Reporter.
FRIDAY, JANUARY 5, 1917.

EDITORIAL NOTICES.

The Editor will always be pleased to examine drawings or articles with a view to publication, but cannot be responsible for the safety of those sent, though every reasonable care will be taken. Contributors desiring payment should clearly state their wishes. No payment will be made until after publication, and a commission to prepare articles or drawings does not necessarily imply acceptance or approval.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

We have upon our staff a very eminent Barrister, who will be glad to answer in the columns of this paper any legal question that may be of interest to our readers. All letters must be addressed "Legal Adviser," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

TENDERS, ETC.

**** A great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.*

CONTRACTS OPEN.

HALIFAX.—Jan. 6.—For alterations to roof over a machine shop at Central Ironworks, Lister Lane (various trades), for the Improvement Committee. Deposit £1. Mr. J. Lord, M.I.C.E., borough engineer, Town Hall, Halifax.

ILFORD.—Jan. 23.—For erection of an engine room at the refuse destructor in Suffolk Road, Seven Kings, for the Ilford Urban District Council. Deposit £1. Mr. H. Shaw, M.I.C.E., engineer and surveyor, Town Hall, Ilford.

IRELAND.—Jan. 8.—For extensions and repairs to Presbyterian Manse, Irvinestown. Mr. E. Flack, Irvinestown.

IRELAND.—Jan. 11.—For building a goods store at Ballymoe Station for the Midland Great Western Railway of Ireland Company. Charge 2*s.* 6*d.* Mr. W. Purcell O'Neill, chief engineer, Broadstone Terminus, Dublin.

SCOTLAND.—Jan. 6.—For shelter, &c., at Western Necropolis, for the Dundee Town Council. Mr. J. Thomson, city engineer, 91 Commercial Street, Dundee.

THE Welsh National Museum Committee have received £20,000 from anonymous donors, which will enable the committee to complete the building contract.

MR. JOSEPH H. HIRST, city architect of Hull, has just written a monograph entitled "The Armorial Bearings of Kingston-upon-Hull."

A BUILDER confessed to the London Appeal Tribunal last week that, although earning £300 a year, he never paid any income-tax. Mr. Brinsley Harper said, with some warmth, that the man had no right to ask the tribunal for a privilege when he had not done his duty to his country. When applicant was granted until February to enable him to fulfil two contracts Mr. Harper exclaimed: "I would not give him a day until he brings the receipt to show that he has paid income-tax. He should go to the surveyor and find out what he actually owes on all this money he has earned." The Tribunal then ruled that if the builder produced a receipt within a week their decision would stand, otherwise he would be called up at once.

PENCIL MANUFACTURE IN THE MADRAS PRESIDENCY.

THE following is an extract from the report of the Director of Industries (Mr. K. T. B. Tressler) for the year 1915-16, given in the "Indian Trade Journal":—

A great deal of progress was made in this industry during the year. Last year an expert was engaged. In a comparatively short space of time he got the plant into working order and turned out pencils with a reasonable finish. The graphite used was not, however, satisfactory, and the wood supplies had not been ascertained. During the current year, therefore, these two important commercial factors were investigated. To begin with, thirty-four or forty different species of wood were collected and tested, and of these eight were selected and tested in bulk. The bulk trials showed that several varieties which at first appeared suitable possessed drawbacks which made them unfit for pencil-making purposes. Of the eight selections three species were finally chosen, and the supplies of these species were investigated with reference to their commercial characteristics —viz., quantity and price. As the best price that can be paid for timber is 10 annas a cubic foot delivered, it is evident that the question of price is one that requires a great deal of consideration. Since most timber in India is not gregarious, the problem of supply in commercial quantity is one that offers considerable practical difficulties. Ultimately, it was found that in one species adequate supplies could be obtained from three circles at a commercial figure. The graphite problem proved an equally difficult one. When it is remembered that a minimum 75 per cent. purity is required, and that the ore available in South India only averages about 30 per cent. purity and that, further, the graphite and silica (with which it is mixed) have almost the same specific gravity, the nature of the problem will be appreciated. A supervisor was deputed to go to the Indian Institute of Science, and he spent several months there studying the problem. None of the known methods of refinement proved of the slightest value, and, finally, an entirely novel method of refinement was introduced. The supervisor in charge of the experiment also made trials with red, blue, and copying leads, and achieved satisfactory results.

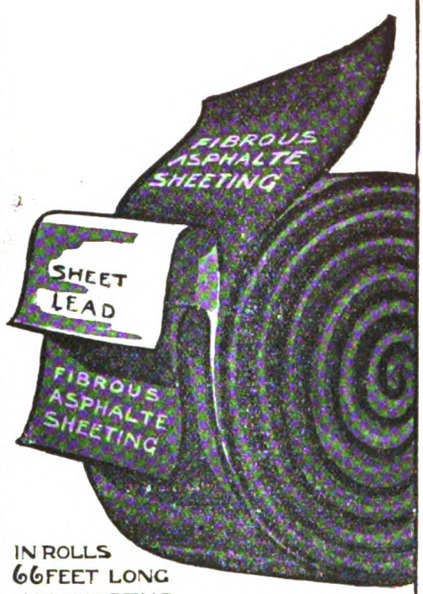
THE monthly Trade Supplement of the "Times" for January contains, amongst other valuable articles, some sidelights from their correspondent at Wellington on the building trades of New Zealand, with special reference to the shortage of material. From this account it would seem that English manufacturers must look lively if they are to checkmate the efforts of rivals to capture this desirable market. Equally practical are most of the other contributions to the issue.

THE annual meeting of the York Master Builders' and Contractors' Association was held in the Queen's Hotel, Micklegate, York. Mr. C. Dent presided. The report of the executive and the treasurer's statement of accounts and balance sheet were submitted and approved. The following officials were elected: Chairman, Mr. Charles Dent; senior vice-chairman, Mr. George Turner; junior vice-chairman, Mr. T. H. Shouksmith; treasurer, Mr. W. Usher; and secretary, Mr. J. Hague.

MIDDLESBROUGH Corporation have succeeded in effecting loans to the extent of £125,000 for the purpose of carrying out extensions to the waterworks. The loans have been divided up in the following manner:—£15,000 from the trustees of the Derbyshire Miners' Association for waterworks purposes, repayable by instalments over a period of five years, with interest on the balance owing at £5 10*s.* per cent. per annum; £25,000 from the Norwich Union Life Insurance Society, under the Tees Valley Water (Consolidation) Act, 1907, to be repaid by instalments over a period of fifteen years, or in a lump sum at the end of fifteen years at the lenders' option, with interest at £5 5*s.* per cent. per annum; and a sum or sums not exceeding £85,000 from the National Deposit Friendly Society, under the Tees Valley Water (Consolidation) Act, 1907, repayable by instalments of principal over a period of twenty years, with a mutual option to determine the loan at the end of not exceeding ten years on the balance at £5 10*s.* per cent.

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BRITISH ENGINEERS' ASSOCIATION.

By order of the Executive Committee of the British Engineers' Association, 32 Victoria Street, Westminster, S.W., Mr. Stafford Ransome, Secretary, has issued a statement explaining an extension of policy on the part of the Association. It proceeds:—The Association was primarily formed to increase engineering trade with China. Since the war, however, its influence has extended to other countries, notably to Russia, and its activities have also been specially applied to protecting and improving the position of the engineering industry at home as affected by war conditions. It resuscitated the movement in favour of the constitution of a Ministry of Industry, which, though started many years ago, had been lost sight of. This movement, owing to the Association's efforts, has now become general. Since the beginning of the war the Association has used its influence to have the laws relating to trading with the enemy revised and strengthened. The results of these efforts have been very encouraging. As membership in the Association necessarily implies that the firm is a *bona fide* British concern, its directories have been extensively used by the Home Government. Our Allies have also found the directories of the greatest assistance with a corresponding benefit to members, who have in consequence received inquiries, both direct and through the Association, which otherwise would not have reached them. The difficulty of knowing which firms in England are under enemy control (owing to the absence of a Government black list) has been met to some extent by a carefully prepared list of those so tainted, which has been of much use to members. . . . The engineering trade has been singled out for exceptional treatment, notably under the Insurance Act, where it was saddled with an unemployment contribution, and under the Munitions Act, which provides that engineering controlled establishments are limited in their profits to 20 per cent. excess, while other trades, which benefit equally by the war, are uncontrolled, and come under another Act, which takes only 50 per cent. of their excess profits. The present situation is one which demands the concerted action of engineering firms throughout the country unless the industrial policy is to be determined, as in the past, without engineering firms having a voice in the matter. British engineering manufacturers have been brought together for the making of munitions of war in a way which has made co-operation a much more simple matter than before the war. On the other hand the war has revealed enemy controlled trade situations which were never even guessed at in peace times. If the engineering industry of the country is to prosper after the war, more particularly in relation to exports, co-operation and co-ordination is an absolute necessity. The British Engineers' Association already has a membership of 300, and the combined capital of its members is about £100,000,000. All its members must be entirely British in their interests, and the work of the Association has for years been devoted to the advancement of its members' trading position.

The main objects on the immediate programme are as follows:—

(1) By representing the engineering industry of the country to induce the Government to recognise it as the body to consult on all matters which concern that industry.

(2) To urge the Government to place the industry in a position which can successfully compete with enemy countries after the war, and not hamper it with legislation and conditions which handicap it.

(3) To obtain from bankers a change of policy which will place British engineers on an equal footing with their Continental competitors, and to start an Engineers' Trust for financing engineering industrial contracts.

(4) To obtain fair terms of contract and preference for British goods by Government Departments.

(5) To encourage co-operative organisation for the purpose of meeting foreign competition.

(6) To discourage the existence of enemy manufacturing and agency concerns in Great Britain.

(7) To continue its efforts to secure the creation of a Ministry of Industry.

(8) To obtain the full co-operation of British Ambassadors, Ministers, and Consular officers throughout the world, and to advocate the improvement of the Consular Service.

(9) To encourage technical education and an appreciation of scientific investigation.

(10) To create branch committees of the Association in all the important engineering centres of the United Kingdom.

The Association will maintain its office and Commissioner in China and a representative in Russia on the existing basis for the time being, and will also, as far as its funds permit, devote itself:—

(*a*) To appointing additional Commissioners and correspondents in various countries as and when required.

(*b*) To collecting information concerning concessions and contracts to be obtained in various countries for the benefit of its members.

(*c*) To extending the issue of its comprehensive directories of members and their products throughout promising markets.

(*d*) To keeping its members informed of all matters of interest by means of reports and other publications.

The opinion has been expressed that an Association cannot make itself felt with the Government without the possession of a very large income, and in the various schemes recently proposed such income has been placed at between £100,000 and £300,000 a year. It is considered, however, that in carrying out the home portion of the above programme, an income of, say, £10,000 would be sufficient as the real weight of an Association, provided that it has sufficient money to carry on its work effectively, depends mainly on its membership.

One thousand members at the existing subscription would provide all the money necessary for carrying out items one to ten of the above programme. It is when developments in overseas countries are required that the heavy expenditure becomes necessary.

HOUSING IN SOUTH WALES.

A MEETING of the Council of the South Wales branch of the Welsh Housing and Development Association was held at Cardiff on Saturday. Mr. D. Lleufer Thomas presided.

The Secretary (Mr. Edgar L. Chappell) reported that a conference of South Wales local authorities was being arranged for February, and a conference of trade union organisations for March, to consider problems of town planning and housing in relation to social reconstruction. He suggested that a deputation should wait on Lord Rhondda, President of the Local Government Board, to urge that a sum of not less than £5,000,000 should be allocated by the Government for expenditure after the war on road construction and house building in Wales and Monmouthshire.

An exhaustive memorandum relating to after-war housing policy was considered, and was ordered to be submitted to the Reconstruction Committee. One of the recommendations approved was for the establishment of a separate Local Government Board and a separate Board of Agriculture for Wales. A suggestion put forward by Professor J. H. Fleure (Aberystwyth) for the development of the inshore fisheries of Wales was discussed, and the secretary was asked to prepare a report on the subject. Mr. Chappell submitted proposals for afforesting waste lands in the colliery districts of South Wales, and suggested that a non-profitmaking Welsh Forestry Society be formed to undertake planting operations for landowners, colliery companies, municipalities, and others. The suggestion was approved, and steps will be taken immediately to give effect thereto.

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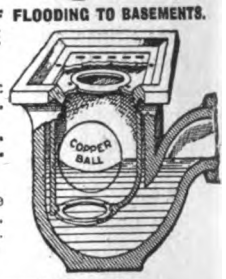
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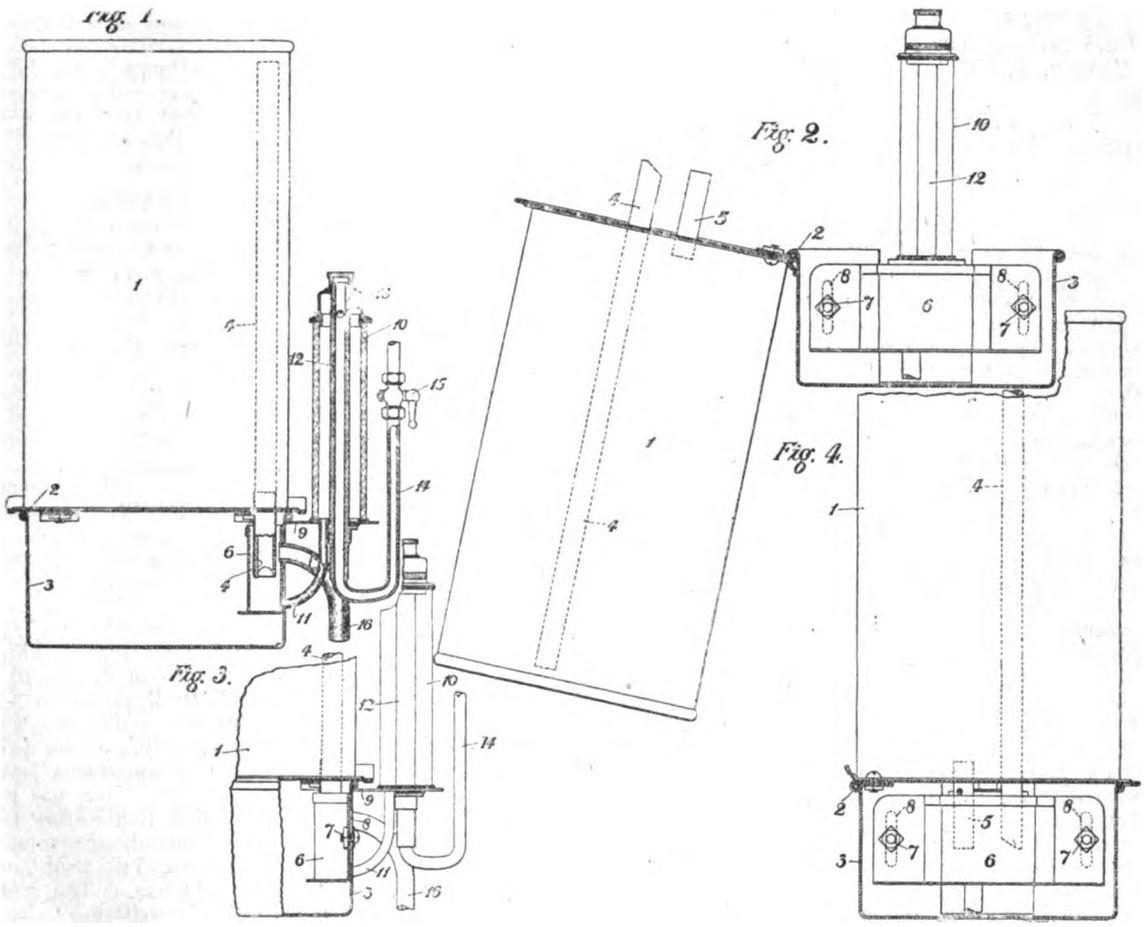
On the proposition of the Chairman, it was resolved to suggest to the board of management of the King Edward VII. Hospital, Cardiff, the desirability of considering whether future building extensions should not take place in one of the elevated suburban districts of the city where the density of population was less, the air purer, and the surroundings more attractive.

BRITISH PATENT SPECIFICATION.

Selected by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the completed specification.

No. 102,133.—Means for Disinfecting Water-closets and the like.—Robert Beresford, 2 Merrial Street, Newcastle-under-Lyme, manufacturer, and C. F. Daly, of Louisvilla, Silverdale, Stafford, physician.—This invention relates to appliances for automatically disinfecting water-closets, urinals, and the like, the appliance comprising a reservoir which automatically supplies the disinfectant into an open vessel to an approximately constant height therein, on the bird-fountain principle. The object of this invention is an improvement or modification to provide an alternative method of filling the reservoir or main receptacle with the fluid disinfectant, and to admit of adjusting or regulating the amount which is discharged each time the flush takes place. Fig. 1 is a sectional elevation. Fig. 2 shows the hinged reservoir turned back to allow of filling. Fig. 3 is a section showing how the adjustment of the open vessel is obtained. Fig. 4 is another sectional elevation showing both depending pipes of the reservoir dipping into the open vessel. The reservoir or receptacle 1 is hinged at 2 to a hollow base chamber 3. The reservoir is provided at the bottom with two depending pipes, 4, 5, the pipe 4 being the air pipe and extending nearly to the top of the interior of the reservoir, whilst the other pipe, 5, extends only a short distance into the interior, and is for the discharge of the fluid from the reservoir. The lower ends of these pipes 4, 5 depend into an open vessel 6 located within the base chamber 3. The vessel 6 is adjustable in height, being fixed by screws or small bolts 7 carried by the vessel and passing through slots 8 in the side of the chamber 3. The vessel 6 carries a bracket 9, upon which is supported a suction chamber 10 communicating with the open vessel 6 by a pipe 11. Passing through the centre of the chamber 10 is a tube 12 having a small hole 13, and communicating at its lower end with an outside pipe 14 passing to the down-pipe from the cistern, and preferably fitted with a tap 15, by which the apparatus can be put out of operation when desired. 16 is the discharge pipe leading from the vessel 6 to the down-pipe from the cistern. The reservoir 1 is filled by turning it back upon its hinge as in fig. 2, so that it assumes a more or less inverted position. The fluid is then poured into one or other of the pipes 4, 5 by means of a funnel, and the reservoir is then returned to its vertical position, with the pipes 4, 5 depending into the vessel 6, into which the fluid flows from the pipe 5 until a certain level is reached, which may be level with or below the pipe 16. On the flush taking place, the flush-water creates a partial vacuum in the pipes 14, 12, and chamber 10, causing the fluid in vessel 6 to ascend pipe 11 and partially fill the chamber 10. This causes the lower end of the air pipe 4 to be uncovered, whereby air is admitted to the upper part of reservoir 1, allowing the fluid to descend to refill the vessel 6. On the flush ceasing, air enters chamber 10 through pipes 14, 12, causing the fluid therein to flow back into vessel 6, overflowing the latter through pipe 16 into the down-pipe from the cistern.—November 22, 1916.



PATENT SPECIFICATIONS.

Selected by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

No. 12,139.—Aug. 23, 1915.—Steel Utilities Inc., 58 Freeman Street, Newark, New Jersey, U.S.A.—Machines for punching structural shapes.

16,662.—Nov. 25, 1915.—O. J. Lund, Drammen, Norway.—Automatic fire alarm.

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16,538.—Nov. 23, 1915.—A. S. De Forenede Norske Laase-og Beslagfabriker, Hegesensgate 30, Christiania, Norway.—Door locks and latches.

16,615.—Nov. 24, 1915.—A. A. Canton, 226 Piccadilly Circus, W.—Burglar or fire alarms, and like apparatus.

17,722.—Dec. 18, 1915.—Alfred Ardern, 116 Duke Street, Southport.—Greenhouse and other like boilers.

101,866 (12,923, Sept. 12, 1919).—Dated under Convention, Oct. 21, 1915.—O. V. Cardell, Eskilstuna, Sweden.—Radiators composed of ribbed pipes.

102,288 (1,855, Feb. 8, 1916).—Albert Haighton, Vulcan Ironworks, Nelson, Lancs.—Fireplace fixtures.

102,298 (3,392, March 7, 1916).—Thomas Parker, 18 Roydon Road, Diss, North Walsam.—Fastenings for sliding windows and the like.

102,309 (4,317, March 23, 1916).—W. D. Frazer, P.O. Box 15, Dain, Nicholas, West Virginia, U.S.A., and J. B. Dodge, of Richwood, Nicholas, West Virginia, U.S.A.—Heating stoves.

102,315 (4,905, April 3, 1916).—Isaac Wolff, 394 West Ferry Road, Millwall.—Locks and fastenings.

102,328 (7,212, May 20, 1916).—Young & Marten, Ltd., and E. M. Edwards, Caledonian Works, Stratford.—Domestic firegrates.

101,924 (5,305, April 11, 1916).—Wm. Gillespie and Chas. Cooney, 265 Mutual Street, Toronto. Hot-water boilers.

Any of the above specifications may be obtained from J. D. Roots & Co.

VARIETIES.

TEMPORARY CAPTAIN M. E. WEBB, Royal Engineers, is among those winners of the Military Cross whose names were published in the "London Gazette" of January 1.

THE late Mr. James Martin, of Lansdown Road, Dublin, a member of the firm of Messrs. H. & J. Martin, Ltd., builders and contractors, left personal estate to the value of £18,930.

THE Derby Corporation, owing to the increasing demand for electric power, have decided to ask for sanction to extend the building and plant at a total outlay, it is stated, of over £30,000.

THE total number of plans of new buildings passed by the Plans Committee of the Aberdeen Town Council during the year ending November 30, 1916, has been 125, and the estimated value of the buildings £66,233, compared with 174 plans with an estimated value of £57,683 in the preceding year.

A JOINT conference was recently held between employers in the local building trade and representatives of the Builders' Labourers' Society of Manchester, Salford, and district on the subject of the labourers' wages. It was agreed to advance the rate by ½d. an hour at the beginning of the new year.

A NOTICE issued by the Manchester, Salford, and District Branch of the National Society of Operative Painters states that owing to the abnormally high cost of living the Joint Arbitration Board representing the trade has awarded local journeymen painters an increase of a halfpenny an hour in their wages, raising them to 11d. per hour, as from last week; and a similar increase as from March 1 next. Apprentices are to receive a war bonus of 2s. 5d. a week.

THE Birmingham Public Works Committee in their annual report to the Corporation, state that conditions brought about by the war having led to a cessation of executive work in connection with large schemes, advantage has been taken of this to reorganise the administration of the Public Works Department. The city has now been divided into three administrative divisions, known as the Central, Western, and Eastern Divisions, and each of these has been placed under a chief surveyor. It is hoped a greater efficiency in working will be attained, and the city surveyor relieved of the constant attention to detail administration which has hitherto engaged a considerable proportion of his time.

ALL preliminary details in connection with the acquisition of Cork Park racecourse and the frontage of deep water on Marina for £10,000, and the wharf belonging to the Cork Harbour Commissioners for a like sum, by the Trafford Engineering Co., Manchester, have been arranged. Subject to the necessary Parliamentary powers being obtained the scheme will go through. The project is the largest ever known in Cork. The lands will be used for erecting commercial, shipping, and manufacturing premises. The estimated cost of the buildings is £400,000, half of which must be expended within three years from now. Two thousand adult males will be employed at a minimum wage of one shilling per hour. A huge factory will be erected on the river front, and a model village for the workers in the park.

IT is stated that the joint Parliamentary Committee in charge of the work of rebuilding the Canadian Parliament buildings, have decided that only Canadian stone is to be used, even for the interior finishing. The quarries of Canada produce stone and marble in wide variety and of great beauty, and the committee will call for samples of stone suitable for interior work. It is possible also that the new Parliament buildings will be heated with electricity from water power. There are, in close proximity to the City of Ottawa, great water-power resources, both developed and undeveloped. The architects are being asked to report upon the estimated cost of the electric heating plant for the whole of the new building.

TRADE NOTES.

THE Denaby Main Wesleyan Church is being ventilated by means of Shorland's patent exhaust roof ventilators supplied by Messrs. E. H. Shorland & Brother, Ltd., of Failsworth, Manchester.

BOYLE'S latest patent "Air-Pump" ventilator, supplied by Messrs. Robert Boyle & Son, ventilating engineers, 64 Holborn Viaduct, E.C., have been employed at the City of London Guardians Institution, Bow Road, E.

NEW CATALOGUES

THE installation of a steam disinfection plant is increasingly in the hands of the busy architect. A knowledge of the matter is a useful thing to possess, and its acquisition may advantageously be undertaken at the present time when the profession has leisure for such things during office hours. Anyone interested will do well to obtain a copy of "Modern Steam Disinfection" from the Grampian Engineering Co., Ltd., of Stirling, N.B., and London. While handling the subject on broad lines, it is chiefly concerned with the "Velox" high-pressure steam and combined current-steam and vacuum-formalin disinfectors as designed and patented by Dr. M. J. Oliver, M.O., Roxburghshire and Selkirkshire; Dr. W. Robertson, M.O., Leith; and Mr. John Simpson, engineer, Stirling. There is an informative chapter comparing the three methods in which heat is applied to disinfections—viz., dry heat (hot air), boiling, and steam. The author is, of course, strongly in favour of the latter, and more particularly of apparatus of the high-pressure or confined steam type in which steam is confined in the chamber at a pressure of from 10 to 15 lb. to the square inch. The "Velox" system is a severely tried one with a long and widespread reputation. Eloquent proof of this is the photograph showing a long goods train loaded with thirty-five complete apparatus leaving the works at Stirling for service abroad. This was part of a contract placed with the Grampian Engineering Co., Ltd., by the British Government. Indeed, the company can justly claim a share in the wonderful record of health attained by our Expeditionary Force. The catalogue is lavishly illustrated and excellently written.

"THE Evolution of the Down Draught Chimney Pot" is the name of a small eight-page booklet issued by Messrs. J. H. Sankey & Son, Ltd., which is cunningly arranged so as to capture the reader's real interest for the subject in general and to lead him on breathlessly to the climax—Sankey's Down Draught Preventing Pot. The booklet is a sort of thumb-nail history of the chimney from prehistoric times—when there were none, only a hole in the roof—up to 1917, when the firm offer their pot as a perfect cure for smoking chimneys. By means of illustrations we see how in design the Sankey pot is a direct lineal descendant of the mediæval efforts to combat the internal (we were almost writing the infernal) smoke nuisance. Science has, of course, since been applied to this very real problem and made us more or less masters of it. The Sankey pot possesses the advantage of not being an unsightly excrescence to offend the skyline effect. Circular on plan, its upper portion is in three tiers of louvres divided perpendicularly. Full particulars may be obtained from the manufacturers and inventors at their city office, 25 Ironmonger Lane, Cheapside, E.C.

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FRIDAY, JANUARY 12, 1917.

EDITORIAL NOTICES.

The Editor will always be pleased to examine drawings or articles with a view to publication, but cannot be responsible for the safety of those sent, though every reasonable care will be taken. Contributors desiring payment should clearly state their wishes. No payment will be made until after publication, and a commission to prepare articles or drawings does not necessarily imply acceptance or approval.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

We have upon our staff a very eminent Barrister, who will be glad to answer in the columns of this paper any legal question that may be of interest to our readers. All letters must be addressed "Legal Adviser," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

TENDERS, ETC.

*** *As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than* 2 P.M. *on Thursdays.*

CONTRACTS OPEN.

ILFORD.—Jan. 23.—For erection of an engine room at the refuse destructor in Suffolk Road, Seven Kings, for the Ilford Urban District Council. Deposit £1. Mr. H. Shaw, M.I.C.E., engineer and surveyor, Town Hall, Ilford.

MANCHESTER.—Jan. 19.—For the execution of general contractors' and plumbers' work that may be required in connection with the drainage of houses and other premises, for a period of twelve months, ending March 31, 1918, in each of the three districts, for the Corporation. Deposit £1 1s. each district. The Superintendent of the Sanitary Department, Drainage Branch, Civic Buildings, Mount Street, Manchester.

PATENT SPECIFICATIONS.

Selected by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

No. 7,205.—May 13, 1915.—Lucien Linden, "Drumgowan," Claremont Road, Claygate, Surrey. Sterilisation of liquids.

17,136.—Dec. 6, 1915.—J. E. Jennings, 28/29 Bank Buildings, Kingsway, W.C. Buildings and like structures.

17,463.—Dec. 14, 1915.—E. B. Martin, Melrose, Ellesmere Park, Eccles. Method of and apparatus for the treatment and purification of sewage.

101,472 (11,661, Aug. 17, 1916. Dated under International Convention Sept. 13, 1915).—H. C. Adam, 904 Pine Street, St. Louis, Missouri, U.S.A. Indirect and semi-indirect lighting fixtures.

102,519 (693, Jan. 17, 1916).—Charles Morgan, 207 Hardshaw Street, St. Helens. Means for securing sash cords to window sashes.

102,522 (944, July 3, 1916).—John Gibb, 11 York Terrace, Shettleston, Glasgow. Compositions for paving and building purposes.

102,588 (9,852, July 13, 1916).—Sutcliffe Binns, Cross Street, Manchester. Construction of strong rooms.

102,598 (13,578, Sept. 25, 1916).—A. S. Powell, 1409 St. John's Place, Brooklyn, N.Y., U.S.A. Lamps for semi-indirect lighting.

102,404 (2,044, February 11, 1916).—A. E. Read, J. E. Franks, and M. Brooks, all of Hatherton Works, Ablewell Street, Walsall, Staffs. Wall boxes for containing electrical switches, plugs, and the like.

102,399 (1,523, February 1, 1916).—John Ross, Cambridge Hotel, Clayton Street, Newcastle-on-Tyne.—Chain grips or wrenches for pipes, rods and the like.

102,438 (7,066, May 17, 1916).—Robert Hunter, 87 High Street, Clapham.—Wood-working machines.

102,447 (8,210, June 9, 1916).—C. F. Troost, 65 Utrechtsche Weg, Arnhem, Netherlands. Hot-water supply tanks.

102,451 (9,016, June 27, 1916).—Henry Richmond, 12 Ormonde Avenue, North Shore, Blackpool.—Corner pieces, fillets, or dust shields for use in the corners of rooms and window-frames, and for other purposes.

102,462 (10,772, July 31, 1916).—J. C. Boswell, 35 Ipswich Road, Norwich.—Flooring of shop windows.

102,472 (12,243, Aug. 29, 1916).—A. W. Tidbury, 9 Waldegrave Road, Upper Norwood, S.E.—Device for cutting discs, rings, grooves, and the like in wood, celluloid, and other materials.

102,428 (5,368, April 12, 1916).—D. J. Davis, 114 City Road, Haverfordwest, S.W.—Locks and the like fastening apparatus.

16,888.—December 1, 1915.—W. S. Armstrong, 4 Caird Drive, Partick, Glasgow.—Construction of reinforced beams, arched ribs, and the like.

100,836 (8,339, June 13, 1916. Dated under International Convention July 8, 1915).—R. B. Benjamin, 120 South Sangamon Street, Chicago, U.S.A.—Holders for electric lamps.

17,742.—Dec. 18, 1915.—Oliver Wickham, 21 Crefield Road, Ealing.—Method of and means for attaching fittings to sheet metal or other sheet or strip material, applicable also for reinforcing the finishing or insulating the marginal edges or holes or apertures in sheet metal or other sheet materials.

Any of the above specifications may be obtained from J. D. Roots & Co.

RESTRICTION ON MAGNESITE.

THE Minister of Munitions gives notice that in exercise of the powers conferred upon him by the Defence of the Realm (Consolidation) Act, 1914, the Defence of the Realm (Amendment) No. 2 Act, 1915, the Defence of the Realm (Consolidation) Regulations, 1914, and all other powers thereunto enabling him, he hereby prohibits as from the date of this Order the use of magnesite and magnesite products for or in connection with—

(1) The construction or repair of any building (other than a furnace), or any flooring or deck, or

(2) The manufacture of any insulating or non-conducting material

except under and in accordance with the terms of a permit granted by the Minister of Munitions.

NOTE.—All applications in reference to this Order should be addressed to: Director of Steel Productions (W.J.J. 342), Armament Buildings, Whitehall Place, S.W.

BELL'S United Asbestos Co., Ltd., have recently laid "Decolite" fire-resisting floors at the Palladium Theatre, Oxford Circus. The architect is Mr. Bertie Crewe, 75 Shaftesbury Avenue.

MR. ERNEST A. MILLS, A.M.Inst.C.E., of Birmingham, has been selected out of seventy-eight candidates for the post of electrical engineer to the Leeds City Council at a salary of £350 per annum.

CAPTAIN ERNEST J. S. COLQUHOUN, Mon. Regiment, architect, has been mentioned in despatches. Captain Colquhoun, who resides at Somerton Road, Newport, was engaged as architect with Messrs. Graham & Hitchcox, Newport, and was captain in the old Volunteer Force.

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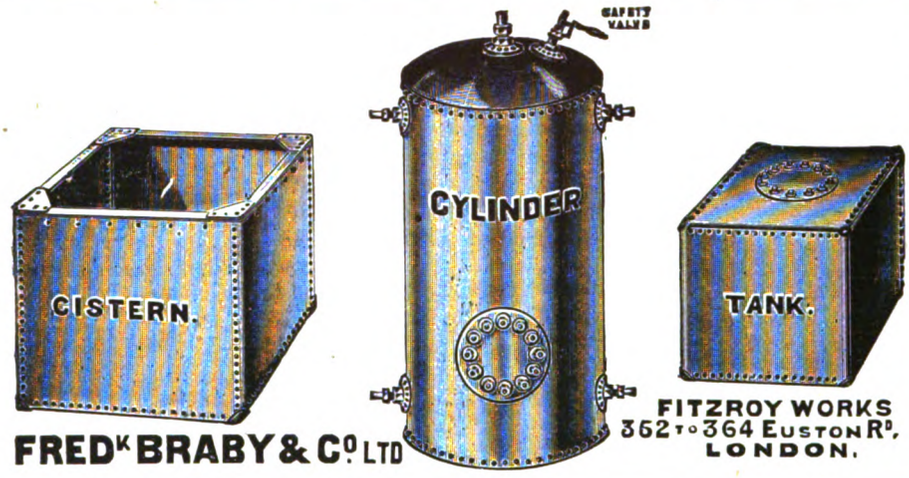
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AFTER-WAR PROSPECTS AND PROBLEMS.*

By Mr. A. G. WHITE, Secretary of the National Federation of Building Trades Employers of Great Britain and Ireland.

THE object of this paper is to call attention to matters which ought to be considered and discussed throughout the Federation at an early date. It is desirable that the building trade should form its views as to the effect which certain new conditions, likely to have influence upon *our* industry along with others, will produce upon *it* and how those influences are to be used so as to benefit the building trade rather than to work injury upon it.

There is a general opinion prevalent that important changes are taking place in the attitude of the Government, the nation, employers, and workmen, towards certain matters in regard to which new points of view have been revealed under the stress of war conditions.

It is true that the building trade has not been affected so far in quite the same way as have many other industries which have been directly engaged in war work, but as an important integral part of the home trade of this country it is likely to feel the results of any important changes which may occur in these industries as a result of the readjustment of opinion which is thought to be taking or likely to take place.

I propose, therefore, to offer some observations upon those important matters in the hope that thought may be stimulated among us to the extent necessary to enable us to grasp the significance of what is taking place around us, and be prepared to deal with after-war prospects and problems in an intelligent manner.

In the limits of this paper I can only outline the various questions, leaving to a later opportunity their elaboration by myself and others.

The war has brought into vivid relief the extraordinary scope and insidious danger of the methods of trade penetration carried on by the enemy prior thereto. Quite a literature has been published dealing in detail with this question, and I must not enter into it now.

The representatives of a number of the great industries of the country have been studying how best to counteract German trade penetration methods after the war, and among other things have decided to form a general association of employers' organisations, which shall embrace in its membership every organised employers' federation or association, to the end that British industry, as a whole, shall be able to exert the influence which it ought upon the development of British trade both at home and abroad.

The new organisation is not intended to be the handmaid of any particular trade or to be hostile to labour, but rather to be the collective expression of them all. It proposes to have a large revenue, the subscription for any member is £100 a year, and to use that money to promote British trade in various ways and in various directions.

The increased cost of living has been brought home to every one of us during recent months. Some think that as soon as the war is over there will be a return to lower prices, if not to pre-war prices; others think some years are likely to elapse before any considerable decline in the cost of living comes about.

The latter point is only important so far as it affects the permanence of the measures being taken now to meet cases of hardship consequent upon the increased cost of living combined with inelastic earnings. The working classes are in the latter category, and it is claimed for them that their level of real wages measured in terms of purchasing power is lower than it was before the war.

Some further revisions of existing rates of wages will be sought in this as in other industries. How such demands shall be dealt with is a question which the branches of this Federation should be prepared to answer.

In that connection there is coming to the fore the question of the relation of high wages to intensive output, and opinion in many quarters on that question is in the melting-pot.

Supposing, for example, that a new compact was arrived at by the great manufacturing industries and their workmen by which high productivity and high wages would go hand in hand, it is worth our while considering what the effect would be upon the building industry, especially as to providing it in the future with an adequate supply of skilled labour. There is a tendency for young people to gravitate towards the trades which offer them the best financial prospects. Already the difficulty of obtaining apprentices for the building trade is acknowledged.

Our trade has certain disadvantages such as irregularity of employment, exposed conditions, and high accident liability, which militate against its attractiveness; a relatively low standard of earnings than what prevails in other industries would aggravate that handicap.

Then there is the relation of our industry to the housing problem which, as was shown clearly at the recent National Housing Congress in London, is in urgent need of solution, is becoming aggravated by delay and by the present war conditions, and will have to be tackled, probably under Government auspices or direction, as soon as possible after peace is declared.

It is even possible that the Government will deem it necessary to mobilise the building trade for a housing campaign on similar lines to those we are familiar with in connection with munitions.

Any increase of productivity on the lines of intensive production coupled with high wages aims a double blow at the solution of the housing problem, by cheapening the product and by making it practicable for the workers to pay increased rent.

It would appear, therefore, that the building trade may have a very deep interest, both directly and indirectly, in any suggestions having for their object high output combined with high earnings by those who give the output.

The building trade conditions are so different from those of most other industries that special study will be necessary to find a way to solve this problem, and it would be well if that study were taken in hand without delay.

It is, moreover, probable that it will be to housing contracts, in connection with large town-planning developments under municipal direction, that the building trade will have to look for its main employment for the next few years. The Government has been approached with, and seems likely to lend a willing ear to, a proposal to set aside £20,000,000 for housing of the working classes after the war; and it is urged that local authorities should be induced to have schemes ready to be proceeded with then in order to provide for the transfer back into our trade of the large numbers of men withdrawn from it for military purposes or for munition work.

Competition for this work will probably be keen, and those associations whose members are best prepared to carry it out cheaply will have a pull over those who are less well prepared.

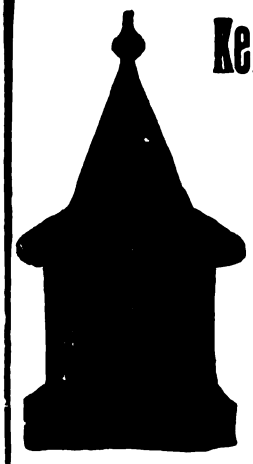
There is a good deal of recognition of the need for improved financial facilities in connection with industrial matters, and a sign of how that opinion is crystallising into action is indicated by the proposal now on foot to form a British Trade Bank with a capital of £10,000,000.

Is it not time this side of our own industry should be studied and some measures taken to provide better financial facilities for the building trade? A period of phenomenal activity for our trade lies ahead of us, and capital may remain dear and hard to get for a long time.

In this connection I suggest that if an amendment of

* A Paper read at a recent conference of secretaries of the National Federation.

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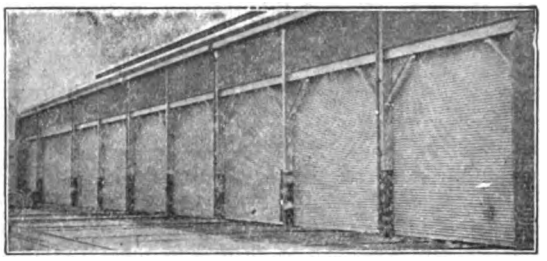
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the law could be obtained which would confer upon all those engaged upon the erection of a building a preferential right to be paid off before any disposal of the building could take place a considerable step towards a solution of this question would be made so far as our trade is concerned.

The idea is not new, and is already in operation in some countries. The present time, when so much attention is being given to the high cost of housing, seems opportune for taking up this question and if it can be shown that a real economy is likely to ensue there would be a fair chance now of a great department like the L.G.B. taking the matter up with a view to legislation.

The question of the professional training of those who are coming into the building trade, and, indeed, into any other industry, is now one of the questions of the hour which presses for a solution.

It is generally recognised that our educational and training methods are too haphazard and too individualistic for the requirements of modern industry.

A general overhauling of secondary schools, technical schools, and apprenticeship training will have to take place.

In London this is already receiving attention, and the Institute of Builders is in conference with representatives of the trades unions and the Juvenile Advisory Committee with a view to a solution on such general lines as may serve as a model for other parts of the country.

I feel very strongly that training for our industry ought to be looked at as a whole and that there should be a complete scheme which, beginning with boys who are leaving the primary schools, should keep them on the right lines of instruction through apprenticeship to journeymanship, through journeymanship to foremanship, through that again to managership, and eventually to mastership.

There should be a complete scheme of honours or diplomas at every stage, and these should culminate in Fellowship of a Professional Institute which ought to be the hall-mark of accomplishment in the building profession, as it is in other professions. I am glad to see that the Institute of Builders is inclined to move in this direction, and I think the rapidity and intensity of its movement could be much accelerated if our local associations took up the discussion this winter of this question of professional training.

I should like to see in every important district a branch of the Institute of Builders engaged upon the developing and supervising of and the training of those who desire to enter the trade, in whatever capacity.

It may be thought that this work could be equally well done by our existing trade associations, but that would be an error.

I cannot enter here into the various reasons why professional training should be in the hands of a special organisation, but I may put it shortly in this way.

Our trade organisations are, in effect, trades unions, admitting all comers and imposing no tests of qualification.

A professional organisation is expressly barred from doing anything which would make it a trade union; it selects its membership and imposes tests as to their professional qualification.

The object being to hall-mark, as it were, those who acquire its diplomas.

There is also a new question which deserves consideration and is receiving it in other industries: I mean the question of the necessity for research as a means of keeping command of our market. Few trades have suffered more in recent years from specialisation by adventurers, not belonging to our industry, but who have seen an opportunity to take from the legitimate builder a part of his regular work and have built thereon a claim to be considered specialists. A proper system of research would secure the utilisation of such opportunities by our own members.

NEW YORK DOWN-TOWN.

INTELLIGENT foreigners look for the soul of New York in the skyscraper region, and not only the soul of the city, but of America. Artists who would savour the beauty of New York find it in the same sky-line of towers and battlements, fresh with mists of the morning or ablaze with a hundred thousand lights at night. They have found beauty in the separate domes and shafts and fortresses, in the Babylonian brick piles of the Terminal Buildings, in the gold and ivory fluting of the Woolworth, in the frosted silver of the Singer Tower under the searchlights, and in the classic façade of the neighbouring Stock Exchange.

Down-Town is an area of not much more than a quarter of a square mile in the form of a triangle, with its base at Chambers Street and its point at Bowling Green. Along the base are clustered the City Hall, the courts, and the newspaper offices, and at the apex is Mr. Rockefeller's place of business; I am not striving for symbolism. From base to tip runs Broadway for a distance of four-fifths of a mile.

American art has gone in heavily for the skyscraper, but I cannot help feeling that the painters and etchers who have come Down-Town for romance have rather forced the sentiment. They have translated lower New York into the same idiom that they employ for Paris or Fiesole. To the artist's eye, I suppose, the white glare of our new skyscrapers is a trial; the razor-edge of the outlines, the sheer heights, the clear-cut masses, are an abomination. For the artist, I suppose, lines ought to waver instead of shooting up three hundred feet like a plumb-line, and mighty structures ought to loom instead of hitting one in the eye. So they have softened and aged Down-Town into a hazy impressionism and away from the truth. They have done with the tall office-buildings what they have done with the Pittsburg chimneys and the locks and dredges at Panama; they have veiled New York in a cloud. They have employed the same technique of shadow and blur for the Terminal Buildings that they use for Notre Dame, endeavouring to impart to a mountain of white marble in our clear New York air the atmosphere of old Gothic stone in the mists of the Seine.—From "Manhattan Labyrinths," by Simeon Strunsky in "Harper's Magazine" for December.

BRITISH PATENT SPECIFICATION.

Selected by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the completed specification.

No. 102,328 (7,212, May 20, 1916).—Domestic Fire-grates.—Young & Marten, Ltd., and E. M. Edwards, Caledonian Works, Stratford, E.—This invention relates to improvements whereby an existing old or worn grate may, by little or no alteration except the removal of the front bars if any, and the addition of these improvements, be converted into a slow-combustion stove or "basket fire" of modern type. Fig. 1 is a plan showing the improved grate with the parts assembled. Fig. 2 is a front elevation thereof. Fig. 3 is an enlarged sectional elevation on line *a*—*a* of fig. 1. Fig. 4 is an enlarged sectional elevation on line *b*—*b* of fig. 1. Upon suitable pedestals *c* are mounted in any readily removable manner, such as by studs *d*, a casting *e* which constitutes the front and the fore-part of the bottom of the grate; said casting is preferably finished internally with curved ribs, corrugations, or grooves e^1, to assist the outward passage of the heat, while to the back part is hinged or pivoted in a readily removable manner such as shown on figs. 1, 3, and 4, the remainder of the grate bottom *f*. The grating portion has its slots f^1 arranged diagonally, one side being in one direction and the other in the opposite direction; this hinged portion adjusts itself automatically to any reasonable height of old grate bottom and covers the

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burnt or weak portion thereof, the diagonal slots ensuring strength and providing ample air supply. A cross slot *g* is provided at the back of the hinged grate bottom for convenience of bolting same through one of the slots in the existing grate bottom, the slot being provided for ensuring lateral adjustment; the bolt *h* serves for holding the whole fitment in position. The front *j* of the grate

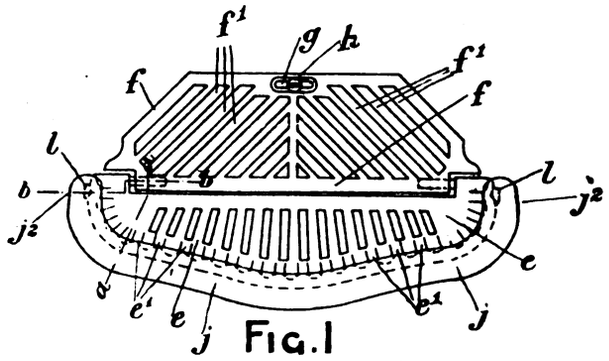


FIG. 1

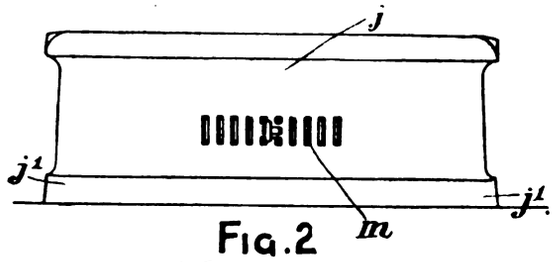


FIG. 2

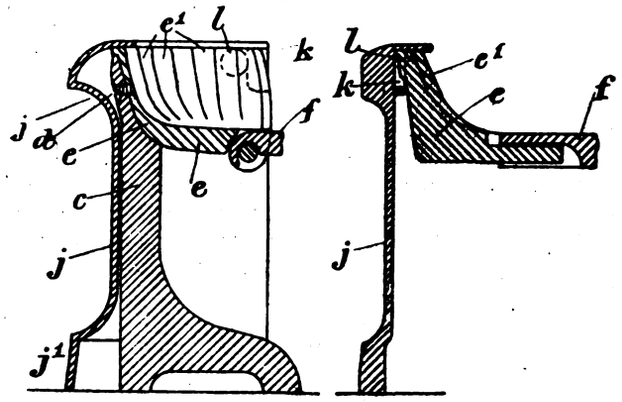


FIG. 3

FIG. 4

is lipped on to the top edge of the new front part of the grate, and a lip or recess on the underside of each end behind the projection of shoulder *k* drops or fits on to horizontal lateral studs *l* on said front part, in such a way as to ensure a neat finish, and enable the front to be automatically locked and readily removed; a sliding air regulating grate *m* is provided therein, and the bottom j^1 is brought out at the front to a wider base than heretofore. The sides j^2 of the lipped top of the front are brought to a taper or splay to fit within the sides of the existing grate opening, the taper or splay allowing for varying widths of openings within reasonable limits.—Dec. 6, 1916.

WE regret to record the death of Major A. M. Kennard, D.S.O., managing director of the Falkirk Iron Co., Ltd., at his residence at Falkirk, on the 2nd inst., at the age of forty-nine. Major Kennard was the eldest son of the late Mr. Arthur Challis Kennard, whose father founded the Falkirk Iron Works. He was educated at Eton, and, selecting a military career, he subsequently studied in the Military Academy at Woolwich. In 1886 he obtained his commission as a lieutenant in the Royal Field Artillery. After gaining his D.S.O. in the South African War he retired from the Army in 1903, in order to take an active part in the affairs of the Falkirk Iron Company. On the outbreak of the present war Major Kennard rejoined, and was wounded at Loos in September 1915, and again on the Somme in September 1916. As a consequence of the latter he was discharged as medically unfit for further service, and was later unable to recover from an attack of pneumonia.

VARIETIES.

MR. ALFRED EDMUND JONES, of Crookleigh, Somerset Road, Huddersfield, Yorks, builder and contractor, left net personalty of £10,946.

MR. WILL DYSON, the Australian artist, has been appointed official artist to the Australian Expeditionary Force in France, with the honorary rank of lieutenant.

THE Colchester Town Council are going to erect a statue to Mr. William Willett, the originator of Daylight Saving and a native of Colchester. The cost will be borne by Alderman Watts.

MR. H. P. TUFNAIL, Licentiate R.I.B.A., of Bognor, has been promoted to the rank of officer commanding a convoy of the Red Cross Society in France, which he joined as a driver some eighteen months ago. This convoy is the largest in France at the present time.

MR. A. EASTON GIBB, of Haversham Grange, Twickenham, and of the firm of Easton Gibb & Co., of Victoria Street, Westminster, contractors for the naval base at Rosyth, and other public work, who died on October 10, left estate of £177,199, with net personalty of £163,493.

THE number of new dwelling-houses in Manchester certified as fit for human habitation in the year ending October 1916, is the lowest on record. It amounts to 119, as against 410 in 1915, 782 in 1914, 563 in 1913, 615 in 1912, 964 in 1911, 1,590 in 1910, and 2,344 in 1909. In the ten preceding years the average was over 2,000.

THE Anglo-Persian Oil Co. are understood to have acquired a large area of land near Skewen, some seven miles from the Swansea boundary, for extensive oil refineries, &c. It is stated that the capital expenditure will amount to about half a million sterling. The scheme is reported to have received Government sanction, and an early start with the new works is expected.

THE Electricity Committee of the Manchester Corporation have recommended the City Council to apply to the Local Government Board for borrowing powers to the extent of £30,000. The last sanction for a similar amount, the committee state, is fully earmarked for sub-stations now being equipped, and before any further necessary contracts can be placed it is imperative that further powers should be obtained.

FIRE tests of all kinds of building walls and partitions, which are expected to have an important bearing on all fire-resisting building construction, have been arranged by the United States Bureau of Standards at Washington. They will be carried out with a newly-installed panel furnace recently constructed at the bureau's big laboratories, which is said to be the most complete and largest plant for such work ever built. Details of the tests, such as types and dimensions of partitions, temperature to which they are to be exposed, time of exposure to fire, the water test to which the heated partitions should be subjected, and other regulations, have been worked out by a committee representing the American Institute of Architects, the American Society for Testing Materials, the National Board of Fire Underwriters, the Associated Metal Lath Manufacturers, the Gypsum Industries Association, the National Brick Manufacturers' Association, the Association of American Portland Cement Manufacturers, the Fire Underwriters' Laboratories, the American Concrete Institute, the National Fire Protection Association, and the National Lime Manufacturers' Association.

THE British Reinforced Concrete Engineering Co., Ltd., of Manchester and London, are to be sincerely congratulated on the high standard at which they maintain their pamphlets issued in the interest of B.R.C. Fabric, under the title of "Road Reinforcement." In their most recent example there is a very happy combination of writer, photographer, and, let us add, printer, in its small compass of twelve pages. The value of road reinforcement in general and the B.R.C. Fabric in particular is interestingly displayed by all three agencies. A brief opening article on "Resilient Concrete" summarises the advantages of reinforcement in road foundations which are built for heavy traffic. As its writer says, "It is going back many years in ordinary building design to make comparison between concrete slabs reinforced and unreinforced, or to find an example of a thick unreinforced slab. It is somewhat surprising to find road progress lagging behind." B.R.C. Fabric, however, is steadily forging its way ahead. Most interesting is the article "National Highways," which, after an historical bird's-eye survey, ends up on a note of hope, viz., that in the establishment of the Road Board we have the first glimmering of recognition, that the roads are a national service over which the State can at least cast its eye.

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THE
Architect and Contract Reporter.
FRIDAY, JANUARY 19, 1917.

EDITORIAL NOTICES.

The Editor will always be pleased to examine drawings or articles with a view to publication, but cannot be responsible for the safety of those sent, though every reasonable care will be taken. Contributors desiring payment should clearly state their wishes. No payment will be made until after publication, and a commission to prepare articles or drawings does not necessarily imply acceptance or approval.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

TENDERS, ETC.

*** *As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than* 2 P.M. *on Thursdays.*

CONTRACTS OPEN.

ILFORD.—Jan. 23.—For erection of an engine room at the refuse destructor in Suffolk Road, Seven Kings, for the Ilford Urban District Council. Deposit £1. Mr. H. Shaw, M.I.C.E., engineer and surveyor, Town Hall, Ilford.

MANCHESTER.—Jan. 19.—For the execution of general contractors' and plumbers' work that may be required in connection with the drainage of houses and other premises, for a period of twelve months, ending March 31, 1918, in each of the three districts, for the Corporation. Deposit £1 1s. each district. The Superintendent of the Sanitary Department, Drainage Branch, Civic Buildings, Mount Street, Manchester.

MANCHESTER.—Feb. 2.—For the supply, delivery, and erection of fan-draught cooling towers, at Stuart Street Station, for the Electricity Committee. Mr. F. E. Hughes, secretary, Electricity Department, Town Hall, Manchester, or Mr. S. L. Pearce, chief electrical engineer, Dickinson Street, Manchester.

MR. JOHN SWIFT, surveyor to the Penistone Urban Council for twenty-six years, died on Tuesday at the age of sixty-two. He attended to his duties up to a week ago.

EASTWOOD Parish Council have issued a report of a meeting which a sub-committee had with Sir John Stirling-Maxwell, Bart., of Pollock, regarding the preservation of the well in the old cemetery at Thornliebank where St. Conval first preached Christianity in the district. Sir John said he was prepared to erect a memorial at the spot and also to get a leading archæologist to report as to the character and date of the bath connected with the well.

VOTING returns issued by the Executive of the Amalgamated Society of Carpenters and Joiners included the following:—New Building Trades Conciliation Scheme.—For, 10,703; against, 1,802. Admission of Women to the Society—For, 3,655; against, 8,454. Penny Levy for National League of the Blind—For, 12,197; against, 923. National Housing Scheme—For, 11,185; against, 1,341.

IN response to an application from the Burnley Town Council, the Carnegie Trust have offered a grant of £15,000 for the erection of a Central Free Library. Among the conditions attached to the grant are that a library rate of 1½*d.* in the pound must be levied, that a site must be provided, either publicly or privately, independent of the grant, and that there shall be a reorganisation and co-ordination of existing library facilities.

PATENT SPECIFICATIONS.

Selected by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

No. 17,719.—Dec. 18, 1915.—E. O. Williams, 22 Albert Mansions, Albert Bridge Road, S.W., and W. R. Jones, 2 Wentworth Studios, Manresa Road, Chelsea, S.W. Construction of reinforced concrete tanks, tuns, bins, silos, vessels, and the like.

102,386 (2, Jan. 3, 1916).—Thomas Twynam, Wynward House, Coatham Road, Redcar, Yorks.—Manufacture of refractory bricks and cement.

101,950 (10,148, July 19, 1916).—W. H. Tonks and Walter Sparks, 201 Moseley Street, Birmingham. Combined casement stays and fasteners.

101,940 (8,520, June 16, 1916).—George Onions, 2 Greenleaf Street, Liverpool, and Milner's Safe Company, Ltd., 28 Finsbury Pavement, E.C. Keyless combination locks.

102,334 (8,127, June 8, 1916).—Benjamin Jones, Ffynonlas, Sarnau, Henllan, R.S.O.—Fire alarms.

102,401 (1,772, Feb. 7, 1916).—Matthew Tudor, 29 Court Road, Cardiff.—Draught excluder.

102,540 (1,960, Feb. 10, 1916).—John Shanks, Tubal Works, Barrhead, Glasgow. Shower fittings for baths.

102,543 (2,231, Feb. 15, 1916).—James Dickie, Victoria Stamping Works, Somerset Road, Ayr. Water-heating apparatus.

102,581 (7,725, May 31, 1916).—H. S. Grundin, Sundbyberg, Sweden. Method of manufacturing hollow stones of concrete or other plastic material.

102,356 (10,203, July 19, 1916).—H. W. Roos, 2,824 Stanton Avenue W.H., Cincinnati, Ohio, U.S.A.—Adjustable shores, particularly applicable for use in connection with concrete structures and the like.

Any of the above specifications may be obtained from J. D. Roots & Co.

CALENDARS FOR 1917.

IT is, of course, a sign of the times that the usual flood of calendars, diaries, and other seasonal reminders of a new year which used to flow from business houses to their customers should have dried up to a mere drip. Economy in such a matter offered a tempting opportunity for retrenchment. Many people will be sorry not to see again their old friends hanging on the wall or standing on writing table. Amongst the calendars which have reached us are a bold one from Peckett & Sons, Ltd., of Bristol, who as makers of locomotives of various sizes and all gauges, very rightly give on top a picture of a tank engine; postal information covers the back. Messrs. Ashwell & Nesbit, Ltd., engineers, combine daily quotations from Shakespeare with a bold block calendar; the headpiece shows the offices at Millwall of the British American Tobacco Co., Ltd., where the heating and ventilation was carried out by the firm. An engagement or memorandum pad, with a week to each page, comes from A. M. Peebles & Son, Ltd., the paper makers. The imposing "Abdulla" Almanac for 1917 has a strong Allied flavour with its pictures both in black and white and in colours by artists of Italy, England, Japan, Australia, Portugal, Russia, South Africa, Belgium, Rumania, Canada, Serbia, New Zealand, and France; doubtless this is symbolical of the world-wide appreciation of Abdulla cigarettes.

BELL'S United Asbestos Co., Ltd., have recently laid "Decolite" fire-resisting floors at the Scala Theatre, Tottenham Court Road, W.C.

THE death is announced of Mr. John Jessop Hardwick, A.R.W.S., aged eighty-five years. He was the son of Mr. William Hardwick, of Beverley, and in early days worked for the "Illustrated London News" and various magazines that used woodcuts. Later he studied under the Royal Academicians Redgrave, Herbert, and Danby, as well as Rossetti and Ruskin. He assisted Ruskin with his classes at the Working Men's College in Great Ormond Street. He first exhibited at the Royal Academy in 1860, and his water-colours of landscape and flowers were well known. He was elected an Associate of the Royal Water-Colour Society in 1882, and he continued to follow his art to within a fortnight of his death.

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A RESUME OF PUBLIC HEALTH MATTERS.*

By G. BELSON CHILVERS, Engineer and Surveyor, Oundle Urban District Council.

HEALTH is probably the greatest and the most sought-for thing in our lives. I feel that the healthy nation is the most progressive. Without health nations and men must deteriorate. Happiness and comfort are bound up in it, and, therefore, if we desire to progress and live comfortably and happily we must continually seek after it, and do our part in all respects to secure it for ourselves and others.

We often hear it said that cleanliness is next to godliness, and I would in all sincerity say it is akin in many cases. Godliness goes with cleanliness. Insanitary and unhealthy conditions assist the devil and all his works, and many people leave the squalor of their homes to seek what they call pleasure and enjoyment in the haunts of vice and sin. Social reforms in health and sanitation, I believe, assist to make people better morally and spiritually, although these reforms cannot of themselves give the true spirit and make a devil a saint. Insanitary and unhealthy conditions impair long life, lower vitality, and render people living in them prone to many of the diseases and ailments of mankind.

Doctors' medicine and faith may go a long way in curing us of ill-health, but we need to remember the old saying, "God helps those that help themselves," and the securing of healthy conditions is one of the foremost helps we can render. It is surprising how ignorant or negligent many people are of the ordinary laws governing hygiene. Soap and water, freedom from dust and dirt are rarely sought after, and would appear to be at a great premium.

In my inspection of various houses I have seen many cases where people seem to glory in their dirt, from the living-room to the bedroom Fresh air and sunlight only accidentally gain access to their dwellings. It is very certain that none need live in filth or be dirty in their person.

Dust, dirt and filth are the breeding-places for flies, fleas, microbes, disease germs, &c. Insects are disease spreaders; they travel from filth to food and deposit infectious matter thereon.

Ventilation, with a boundless supply of fresh air and sunlight, are wonderful cures for many dread diseases, purifying and cleansing the air we breathe; yet we find windows closed and blinds drawn to shut out the pure air and sunlight. The sun must not shed its rays upon our furniture, carpets, &c., for fear of making them fade! We had far better only have things which do not fade than shut out the glorious sun's rays. What is the use of by-laws compelling builders to provide windows of at least one-tenth the floor area, half of which must be made to open, if we defeat the object for which they were made?

Many people, too, have an unnecessary amount of hangings and draperies, ornaments, knick-knacks, and other dust harbourers about their houses; rooms have too many ornamental mouldings, nooks, crannies, and corners about them; and all these harbour dirt and dust, and time will not allow them to be cleaned except on quite rare occasions, which may be annually at the time called "spring cleaning." Carpets may be very well in their way, and make a room more cosy, but it is certain they are not so cleanly as linoleum or stained and polished floors, with a few rugs or mats placed where required, and easily taken up and freed from dust.

Wallpapers often leave much to be desired, more especially when a new paper is put directly over an old one. I have found as many as six papers, each on top of the other—a most insanitary arrangement, as decomposition must take place. Why can we not get ourselves used to distempered or painted walls? They can be made to look very nice by a proper arrangement of colours and forming dado and frieze, and are certainly more sanitary and healthy.

We are all agreed that dust, dirt, garbage, and other rubbish should be kept as far as possible from the dwelling-house, yet it is surprising how often we find the rubbish receptacle as close as possible to the doors and windows of the house. It is to be regretted that in so many towns these receptacles are open wood boxes, pails or old baths. We find a grand selection, but it is a difficult matter to secure the provision of a proper bin, and the official often does not obtain the support he should. If only we could press upon the people the necessity to secure for themselves a proper galvanised bin with cover, which appears to me to be the most satisfactory if properly used! We have recently had brought to our notice a contrivance which, although ingenious, leaves, I think, much to be desired. We have all been to the open rubbish box, and know that it harbours flies, and gives off a most unpleasant odour; this would not be experienced with a proper bin. What is the use of having fly papers and catchers in the house if we surround ourselves with breeding-grounds?

The drainage and sanitary arrangements to our houses need constant attention, and should be periodically cleansed and flushed. A liberal use of disinfecting powder or fluid may be allowed, but it is always better to give our attention firstly to the cause of offensive emanations, and then we may find that no disinfecting agent is needed. Especial care needs to be taken in connection with those antiquated and most insanitary arrangements called middens, although these are gradually disappearing, and the sooner they are abolished the better.

In the majority of towns there are now efficient drainage and sewerage systems, and proper means of disposal. There are yet still towns without an efficient system. Many large country villages also have no system, and the conditions are most unsatisfactory. These places do not bother about it; they seem content to go on in their own "sweet way." They will not hear of any scheme. Those responsible look upon themselves as economists; yet their economy is but false, and their interest a "pocket one," the welfare and well-being of the people being the last consideration. A pure and efficient water supply is another essential for all places, yet we have many small towns and villages without it. Water is taken from defective and impure sources, while wells are close to cesspools and drainage from cattle yards, and other fouled surfaces have access to them. This is often due to the faulty construction of the well or cesspool. What appears to have happened is this—two holes were dug, and lined with dry-laid bricks, one being called the well and the other the cesspool. Can we wonder at disease being rampant? We also find the water supply taken from an open pond, full of mud and growth, and often a drain pipe discharging its contents into it. Many small towns and villages view with great disfavour and are up in arms if an efficient system of sewerage, sewage disposal, or water supply is suggested. They will tell you that their arrangements have sufficed for the past and no ill results have occurred; the inhabitants, they say, live as long as they like; and yet facts prove otherwise. A case like this occurred during the past few weeks in the district adjoining mine. In places where proper systems have been installed the death rate is lowered, infantile mortality reduced, infectious disease eradicated, or nearly so, and the general health bettered.

Slum dwellings and houses packed together in any corner, without sufficient air space round about them, are another factor conducive to ill-health, although such arrangements are now practically impossible, and those in existence will undoubtedly be done away with before many years.

It is to be regretted that so many of the smaller houses have no proper pantry or cupboard for the storing of food. A dry and well ventilated pantry should be a *sine quâ non* if food is to be kept in a wholesome condition.

* A Paper presented at the annual meeting of the Institution of Municipal Engineers in London on January 6.

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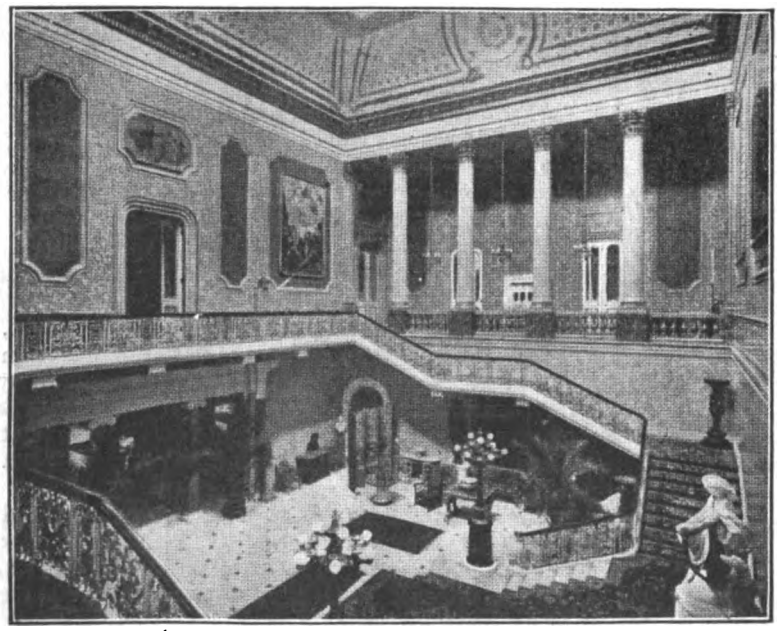
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A bath and bath-room should also be provided; or in the case of very small property, why could not a small building be erected for the use of about six houses? While upon this matter, I should like to ask why some water authorities, who are also the sanitary authority, make an extra charge for water used for a bath? It is what I call taxing cleanliness, and should not be.

It is also necessary that the premises where people are employed should be well ventilated, lighted and clean, and that only a limited number of persons should work in a certain space.

The Governments of the past and present have been alive to the majority of these matters, and have put in force Acts, and have compelled, and are compelling, sanitary authorities to carry out works, and to cause individuals to do works, to make the country healthier to live in and to prevent the spread of disease.

The most important Act is the Public Health Act of 1875, amended in 1890 and 1907, which deals with matters of sewerage, sewage disposal, drainage and sanitation, water supply, street and house scavenging, nuisances, overcrowding, offensive trades, infectious diseases, food inspection, construction of new buildings, slaughter-houses, common lodging-houses, and other matters. We have also other Acts relating to the milk supply, embodying regulations as to lighting, ventilation and cleanliness of cowsheds, dairies and milkshops; also as to infectious disease among animals, canal boats, caravan dwellings, factories and workshops. We have also other Acts amending and extending these Acts, and new ones entirely dealing with important health matters, and I find that since 1875 over sixty Acts have been passed dealing with matters allied to this subject. The Local Government Board have great power bestowed upon them to wake up defaulting authorities to their responsibilities, compelling them to carry out works.

The most important Act of recent years is without doubt the Housing and Town Planning Act of 1909, which makes it compulsory for all sanitary authorities to cause to be made from time to time a systematic inspection of all dwelling-houses in their district, and to tabulate the conditions found as to sanitation, general repair, lighting and ventilation of the premises, and as to the number of inhabitants of each house. Owners may be compelled to remedy any defects, and in cases of general dilapidation to close the house for human habitation, and if necessary to demolish the premises.

This is a most important Act, and will undoubtedly improve the housing conditions of the poorer people. The Local Government Board are stringently enforcing its carrying out, and require annually a full report as to work done. It is to be regretted that owners of property should so often need forcing to do necessary work. Local authorities have also power bestowed upon them to erect in their district houses for the working classes, and the Local Government Board can compel authorities to carry out schemes where there is a scarcity of houses.

Another important matter which can be carried out under this Act is the preparation of town planning schemes, showing how the district is to be laid out in the future, the line or course of any new streets, the laying out of estates, sites for open spaces, recreation grounds, public buildings, &c., and the number of houses that may be erected on a certain area.

I feel that it would be a good thing if all districts, especially those urban in character, large and small, prepared a scheme. In many towns we find *culs-de-sac*, necessitating the taking of circuitous routes, or the travelling over ground twice when once would suffice. These streets are likely to remain as such, owing to the action of the owner of the land adjoining.

I mentioned previously the number of Acts there are in force dealing with public health and kindred matters. Is it not time these were all embodied in one Act? Of course, during the present crisis is not an opportune time to go into the matter, although I feel that as soon as possible consideration should be given to it, and municipal engineers and sanitary surveyors given a chance to air their views. Amendments and additions are needed still; there are many loopholes; and some sections are certainly not clear. Probably a commission might be appointed, composed of town clerks, surveyors, medical officers, and others, with power to receive evidence. Probably we shall in due course have a Ministry of Public Health, or some other department, whose duty it will be to deal with this subject.

We each have our individual responsibilities in this great matter, and can make our towns or our country villages better to live in from a health point of view. Future generations will bless us for our forethought and consideration, and we shall become a healthier, stronger and longer lived nation.

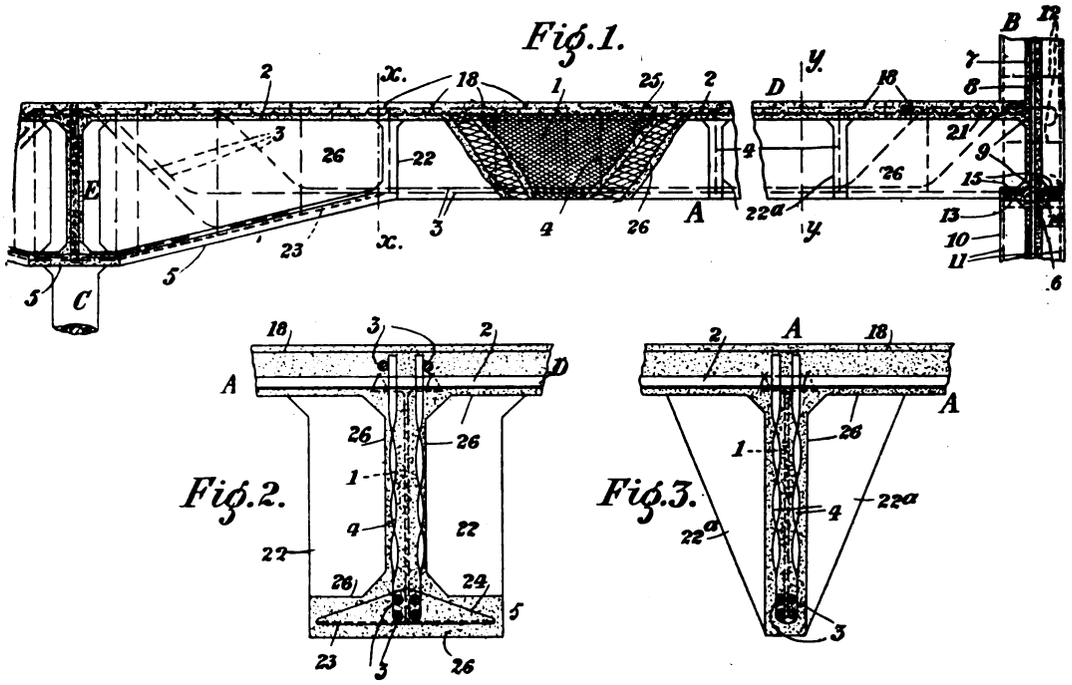
BRITISH PATENT SPECIFICATION.

Selected by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the completed specification.

No. 16,888. Dec. 1, 1915. W. S. Armstrong, 4 Caird Drive, Partick, Glasgow, civil engineer.—Construction of reinforced beams, arched ribs and the like.—In constructions of reinforced concrete it is customary to cast the beams and supports in moulds, which moulds are commonly made of wood, and their construction and removal form a large part of the cost of the construction. In this invention the reinforced beams are formed of metallic lathing which is covered with Portland cement or other hard-setting plaster, after having reinforcing rods bent, near supports, to resist shearing forces and secured in position by wiring or clipping on to the lathing. During the process of plastering the lathing may be temporarily stayed in position in any well known manner. As beams made in this manner are usually deeper in proportion to their thickness than are beams made in moulds, they must be kept in position by gusset or web stays formed in the same manner as the beams, that is to say, by cement plaster applied to metal lathing which has been cut to shape and fastened to the lath in beam and floor by wiring or clipping. As the effect of shearing forces in a tee-beam on the section formed by the junction of the rib of the beam with the floor slab has to be carefully considered, and as it is not proposed to form the rib of the beam and the floor slab at the same operation as is commonly done, means must be found to assure adequate resistance to shear at this section, and it is proposed to do this by bending outwards the edge of the metal lath in beam, where it joins the floor slab, in addition to which stirrups, as commonly used, may be employed if rendered necessary by the forces to be resisted by the beam. Ordinarily, more than one coat of cement plaster will be required in beams, and in such cases means must be provided to key the coats of cement plaster to one another and cause them to act together. It is proposed to stiffen the walls similarly formed by means of intersecting ribs standing out from one or both sides of the walls, and, preferably, formed in the same manner as the walls themselves, thus providing a monolithic construction of beams and walls. By this invention it will be possible to construct domestic and light industrial buildings having the walls and beams constructed of metal lath and cement plaster, and the floors and roof of metal lath and concrete, all suitably reinforced. Such buildings will have the advantages of reinforced concrete, but will cost less to construct owing to the saving, by elimination of moulds and economy in concrete in floors and roof, which may be thinner under this invention than is commonly necessary. Fig. 1 is an elevation, partly sectioned, of a lath and cement plaster beam for a floor D. Fig. 2 is a cross-section, to an enlarged scale, of the beam taken on the line x—x of fig. 1. Fig. 3 is a cross-section, to an enlarged scale, of the beam taken on the line y—y, fig. 1. The beam A in fig. 1, which is a typical secondary beam for a floor, is supported at the outer end by the wall B of the building and at the inner end by a

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reinforced concrete column over which the beam is continuous. 1 indicates the metallic lathing in the beam, and 2 indicates the metallic lathing in the floor D. The lathing 1 is covered with two coats of cement plaster 25, 26 (indicated by the dotted sectioning); these coats are shown successively removed at the centre of the beam so as to lay bare the lathing 1. The first coat of cement plaster is well scratched so as to key the second coat. The floor slab is shown in section and also the main beam E carrying the secondary beams between the columns C, this main beam being constructed generally in the same manner as the secondary beams. The dotted lines 3 indicate the beam reinforcing rods which are bent as required by shearing forces. 18 are the reinforcing rods of the floor. 4 are the beam stirrups. The compression flange 5 of the beam has metallic lathing 23 therein and wire binders 24. 22 are gusset stays of rectangular formation, and 22a (fig. 3) gusset stays of triangular formation. The compression flange begins, as shown at 22, fig. 1, close to the point of contra flexure, and is determined in the ordinary way by calculation. The wall B carrying the metallic lath and cement plaster beams is constructed of metallic lathing and cement plaster, and such being the case, it has to be stiffened in order to carry the load, by means of vertical and horizontal stiffening ribs. 7 is the lath and cement plaster wall, 8 the metallic lathing, and 9 reinforcing rods in the wall. The stiffening ribs, which are marked 10, 13, are preferably made of lath and cement plaster in the same manner as the walls themselves. 10 are vertical stiffening ribs of the wall. 11 vertical rods in the same, and 12 wire binders. 13 are horizontal stiffening ribs of the wall, 14 (see fig. 1) horizontal lathing of these stiffening ribs. 15 horizontal reinforcing rods in the ribs 13, and 16 wire binders. The window frames 19 are the usual steel frames as used in factory construction. Dec. 13, 1916.

VARIETIES.

THE Trade Paper Publishing Co., Ltd., 365 Birkbeck Bank Chambers, High Holborn, W.C., have issued a handy catalogue of "Books for the Painter, Decorator, Manufacturer, and Chemist." It is especially useful, because in most cases a very fair idea may be obtained of the scope of each work from the *précis* given.

SIR WILLIAM FORWOOD, of Bromborough Hall, Cheshire, a visitor to Windermere for over fifty years, has offered to build and furnish a War Memorial Chapel at Windermere Parish Church by extending the north aisle at an estimated cost of over £2,000. He is also prepared to give a further £300 for the erection of a clergy vestry.

AT a meeting of the School Board of Dunfermline last week a telegram was read from the Scotch Education Department stating that the Admiralty had decided to lend the Board £30,000, free of interest, during the period of the war in connection with the building of a permanent school at Rosyth. The Board afterwards arranged for a beginning being made at once; plans for the school were prepared and estimates accepted some time ago.

THE Tadcaster Rural Council have examined plans from the East and West Riding County Councils for the erection of temporary buildings for the accommodation of disabled soldiers and sailors while being trained for agricultural work. The Council decided that, having regard to the purpose, and the urgency for which they were required, the plans should be passed, though they are not strictly in accordance with the Council's by-laws.

TEN companies of quarrymen are to be raised for service in France. Men up to fifty years of age accustomed to quarry work in all its branches, who are reasonably fit, are eligible for service, and the rates of pay vary from 2*s.* 2*d.* to 4*s.* 6*d.* per day. The men will be enlisted for the duration of the war, posted to the corps of the Royal Engineers, and their families will be entitled to the usual separation allowances. Mr. D. A. Donald, engineer, Town Hall, Grangemouth, is in a position to issue enlistment cards to men suitable for the service.

AMONG the Scottish architects who have recently gained War Honours is Lieutenant Thomas M'Lachlan, Northumberland Fusiliers, to whom has been awarded the Military Cross. He enlisted in September 1914, and, after receiving a commission, was drafted to the Front in February 1915. In July he was gazetted Lieutenant. He is an architect and measurer, and was engaged in the Valuation Offices in connection with the Inland Revenue Department at Edinburgh.

WE regret to record the death, after nine months' illness, of Mr. Herbert Batsford on the 14th inst. at his residence, 5 Woodstock Avenue, Golder's Green, aged fifty-five. He was the youngest surviving son of Mr. Bradley T. Batsford, by whom the bookselling and publishing business was founded in 1842, and worthily maintained the latter's international reputation as a friend of architectural literature no less than as a publisher of technical books. Many are the authors who have profited by Mr. Herbert Batsford's initiative, unique experience, untiring interest, and absolute fairness. The shop in High Holborn has, too, for years been the Mecca of lovers of books devoted to the cult of the Beautiful. Mr. Harry Batsford, a nephew, is left to carry on the business, and, we do not doubt, the family tradition, with the assistance of Mr. W. Hanneford Smith, both of whom have for some twenty years been connected with it.

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THE
Architect and Contract Reporter.
FRIDAY, JANUARY 26, 1917.

EDITORIAL NOTICES.

The Editor will always be pleased to examine drawings or articles with a view to publication, but cannot be responsible for the safety of those sent, though every reasonable care will be taken. Contributors desiring payment should clearly state their wishes. No payment will be made until after publication, and a commission to prepare articles or drawings does not necessarily imply acceptance or approval.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

We have upon our staff a very eminent Barrister, who will be glad to answer in the columns of this paper any legal question that may be of interest to our readers. All letters must be addressed "Legal Adviser," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

TENDERS, ETC.

**** As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.*

CONTRACTS OPEN.

BATLEY CARR.—Jan. 31. For the reconstruction of Victoria Mills, Batley Carr, Yorks. Messrs. Kirk, Sons & Ridgway, F.R.I.B.A., architects and surveyors, Market Place, Dewsbury.

BEDFORD.—The Corporation is about to carry out extensions at the electricity works, comprising buildings, boiler-house plant, turbo-generator plant, steam and water auxiliaries, high-tension and extra high-tension switchgear, transformers, and cables. In consequence of present conditions and the urgency with which the works must be executed no detailed specifications will be issued, but British manufacturers who are in a position to contract for any part of the works may obtain particulars by writing to Mr. R. W. L. Phillips, A.M.I.E.E., borough electrical engineer, Bedford.

HALIFAX.—Feb. 2.—For the several works required in erection of additions to the kitchen at the St. Luke's (War) Hospital, Salterhebble, for the Halifax Board of Guardians. Messrs. Clement Williams & Sons, architects, Post Office Buildings, Commercial Street, Halifax.

IRELAND.—Feb. 28.—For erection of new bathrooms, lavatories, &c., at the Louth County Infirmary. Mr. V. J. O'Connell, M.I.M. and C.E., architect, Earl Street, Dundalk, and Harbour Office, Newry.

ISLE OF WIGHT.—Feb. 10.—For the repair of the esplanade at Freshwater Bay, for the Freshwater Parish Council. Mr. J. Gilbert, clerk, Attabella, Heathfield Road, Freshwater, I.W.

MANCHESTER.—Feb. 2.—For the supply, delivery, and erection of fan-draught cooling towers, at Stuart Street Station, for the Electricity Committee. Mr. F. E. Hughes, secretary, Electricity Department, Town Hall, Manchester, or Mr. S. L. Pearce, chief electrical engineer, Dickinson Street, Manchester.

THE Oldcastle (Ireland) Rural District Council intend to apply for a loan of £1,700 to complete their seventh scheme of labourers' cottages.

THE Y.M.C.A. Hut, Heaton Park, Manchester, is being warmed by means of Shorland's warm-air ventilating patent Manchester stoves supplied by Messrs. E. H. Shorland & Brother, Ltd., of Failsworth, Manchester.

TENDERS.

LONDON.

For alterations and additions to switchgear (second portion), in connection with the third new turbo-generator to be installed at Greenwich generating station for the London County Council.

British Thomson-Houston Co.	£5,519	0	0
British Westinghouse Electric and Manufacturing Co.	5,256	0	0
FERGUSON, PAILIN & Co., LTD., Manchester (*accepted*)	2,444	0	0

For additional steam, exhaust, and condensing water piping, &c., required in connection with the third new turbo-generator to be installed at Greenwich generating station.

John Spencer, Ltd.	£7,055	0	0
Babcock & Wilcox	5,943	0	0
BRIGHTSIDE FOUNDRY AND ENGINEERING Co., LTD., Victoria Street, S.W. (*accepted*) *	5,527 (incomplete)	0	0

* Plus £140 for thicker plates for the large circulating water pipes.

For the provision of mechanical stokers for four water-tube Stirling boilers at Greenwich generating station to render them suitable for burning coke or cheap class of coal.

Ed. Bennis & Co., Ltd., Bolton	£5,945	5	0
UNDERFEED STOKER Co., LTD., South Place E.C. (*accepted*)	5,447	0	0

PATENT SPECIFICATIONS.

Selected by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

No. 24,756.*—Nov. 18, 1908.—F. P. Candy, 4 Westminster Palace Gardens, Artillery Row, Westminster, S.W., and 1,212,* Jan. 18, 1909. Apparatus for use in or in connection with the coating of roads and other surfaces with tar or the like. (Amended specifications.)

17,785.—Dec. 20, 1915.—Steel Utilities Inc., 58 Freeman Street, Newark, New Jersey, U.S.A. Machines for punching structural shapes or beams.

17,799.—Dec. 20, 1915.—W. G. Tarrant, Lake House, Byfleet, Surrey. Army or other portable huts.

17,801.—Dec. 20, 1915.—C. W. Naylor, 82A Jorrisen Street, Braamfontein, Johannesburg, and J. E. Taylor, 112 4th Avenue, Melville, Johannesburg. Means for operating or opening and closing sliding windows, slides of ventilators, sliding doors, and the like.

17,862.—Dec. 21, 1915 (dated under International Convention April 10, 1915).—Henry Welte, Znaim (Mahren), Austria. Process for the production of a thick or compact metallic coating on artificial stones and articles of artificial stone mass.

100,089 (2,282, Feb. 15, 1916, dated under International Convention Feb. 15, 1915).—J. W. Scott and T. H. Greer, 50 Church Street, New York, U.S.A. Stair treads.

102,626 (106, Jan. 4, 1916).—Chas. Scott-Snell, Grosvenor House, Ridgeway, Wimbledon, Surrey, and David Anderson, West Hill House, West Hill, Kent. Gas fires.

Any of the above specifications may be obtained from J. D. Roots & Co.

THE funeral took place at Guildford Cemetery on Jan. 20 of Mr. Ralph Nevill, F.S.A., F.R.I.B.A., who died at his residence, Clifton House, at the age of seventy-two. An architect by profession, Mr. Nevill became a F.R.I.B.A. in 1876, and retired in 1909. He was an active Fellow of the Society of Antiquaries, being hon. secretary for Surrey. Mr. Nevill had served on the Council for forty-two years, and during his thirty years' residence in Guildford took a great interest in the preservation of ancient buildings in the town. He was the author of numerous books on ancient architecture, and was responsible for the last restoration of Godalming Parish Church. The deceased founded the Shalford Park Golf Club, of which he was secretary.

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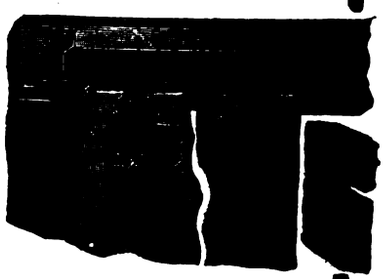
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BRITISH INDUSTRIES FAIR, 1917.

MANUFACTURERS who are exhibiting at the British Industries Fair have received their allotments of space from the Board of Trade during the last few days, and the work of erecting stands has already begun. The total amount of space applied for has again largely exceeded the space at the Board's disposal, with the result that exhibitors have found their allotments considerably reduced. In some cases it has even been found necessary to reduce the applications by half. This reduction in size of the stands is, however, a matter for congratulation, as it tends to make the Fair more compact without in any way detracting from its commercial utility. Large stands may be spectacular, but they do not increase orders.

Last year's Fair was held in the Victoria and Albert Museum, a portion of which had kindly been placed at the disposal of the Board of Trade by the Board of Education. As this year the Board of Trade have been able to secure not only a portion of the Victoria and Albert Museum, but also the great hall and certain galleries in the Imperial Institute, which have been kindly lent by the Executive Council of the Institute and the University of London, the space covered by the Fair will be considerably larger than last year and the number of exhibitors will also be greater. To what size these Fairs will grow when the restrictions imposed as a result of the war have been removed it is hard to imagine. The 600 exhibitors of the first Fair should become a couple of thousands after the war.

The Fair will open on the last Monday in February (February 26), and will remain open till March 9, that is to say, until the Friday of the following week.

A great advance has now been made in the organisation of Trade Fairs, for, concurrently with the London Fair, a Fair for a number of trades which are not included in the London Fair is being organised by the Corporation of the City of Glasgow under the auspices and with the support of the Board of Trade.

The London Fair, like all such undertakings, comes under the restrictions imposed by the Ministry of Munitions, and consequently certain trades, which would otherwise be included, cannot participate. None the less the Fair will be not only larger but also more important than it was last year when so much business was done, for numbers of firms who have not hitherto exhibited have written asking that space may be reserved for them.

The trades which will exhibit in London are:—Toys and games, earthenware and china, glass, fancy goods, stationery and printing.

The Glasgow British Industries Fair, which is under the auspices of the Board of Trade and has its full support, will include:—Textiles, ready-made clothing, boots and shoes, foodstuffs (prepared and preserved), domestic chemicals.

By this new system of holding more than one Fair at the same time, while carefully preventing the duplication of the participating trades, the inducement to foreign buyers to visit the country is greatly increased, and there is no reason why the British fortnight, or whatever the period of the concurrent but not competing Fairs is called eventually, should not become the greatest trade event of the year for the whole world, and one which no trade buyer, whatever his nationality, could on any account afford to miss.

At the London Fair, which is, of course, as in previous years under the sole control of the Board of Trade, the charge for space will be two shillings a square foot, and exhibitors have no other expense except the cost of the erection of their stands. At last year's Fair many exhibitors had stands as small as 6 feet by 6 feet, and their total expenses, including the erection of their stands, probably did not exceed £7. None the less for an outlay of that small amount many of them booked orders for several thousand pounds.

Many exhibitors at the Fair have taken orders at the rate of £1,000 a day, and one exhibitor stated that he opened over 400 new accounts, of which over 70 were with foreign firms. Another firm stated that they had done as much business in a fortnight at the Fair as they would have been able to do in the ordinary way of business in two years with four travellers. Another firm, which was doubtful at the time of the first British Industries Fair as to whether or not to close down owing to lack of orders, booked orders sufficient to keep their factory on full time for the whole of the coming year and repeated the same success at the second Fair. When one thinks what it means to a business to be in a position to dispense with all expense for travellers or for otherwise obtaining orders, one can understand what the Fair has done for the firm in question.

Another source of trade to exhibitors is the Fair Catalogue, which is produced in the form of a book of reference for buyers and so arranged as to be a handy guide to the manufacturers in the participating trades. After the Fair copies are circulated by the Board of Trade to all parts of the world, and the results obtained have been nothing less than extraordinary. Many exhibitors have received several hundred communications from foreign firms and have done thousands of pounds worth of business, while at the same time opening up new trade connections which will probably yield increasingly important results in the future.

Inquiries have been received by firms whose names appear in the catalogue from even such unlikely places as Greenland.

One reason why such good results have been achieved by the Fairs is the care taken by the Board of Trade to admit only trade buyers. The merely curious being excluded, the stall holders know that practically all enquiries made are worth careful attention.

The issuing of the invitations to buyers to visit the Fair also plays an important part in securing its success, and the system adopted by the Board is a marked advance on the methods previously employed in this country. By the old method every exhibitor was entitled to so many tickets of admission for issue to his customers. The result was that almost all exhibitors sent their invitation tickets to the same buyers and consequently the large buyers got numbers of invitations while the smaller buyers got none unless they applied for them. Under the system now adopted by the Board the duplication of invitations is done away with. When the Fairs were inaugurated in 1915 the exhibitors were asked to send to the Board the names of all buyers whom they would like to be invited, and many of them took advantage to the full of the Board's offer, sending lists of names which run into thousands. As can be imagined the total number of names sent in by the exhibitors was enormous, but none the less a card index was compiled containing all the names included in the hundreds of lists which were submitted by exhibitors, and an invitation was sent in the name of the Board to each individual and firm whose name was included in the card index which now contains 77,000 names. New names are constantly being added to the index and any names submitted by exhibitors are carefully compared with it and if necessary added, though it is growing rarer and rarer for names which are submitted not to be found to have been already included.

The names of foreign buyers are classified under countries and have an index of their own. They have been obtained from various sources and number about 20,000. Each of them receives an invitation.

In addition a supply of invitation cards and printed notices drawn up in the language of the country for which they are intended is sent to H.M. Consuls and Trade Commissioners all over the world, all of whom are requested to make the Fairs known in their respective districts.

There is no truth in the rumour, which probably emanates from a pro-German source, that the Fair has been abandoned.

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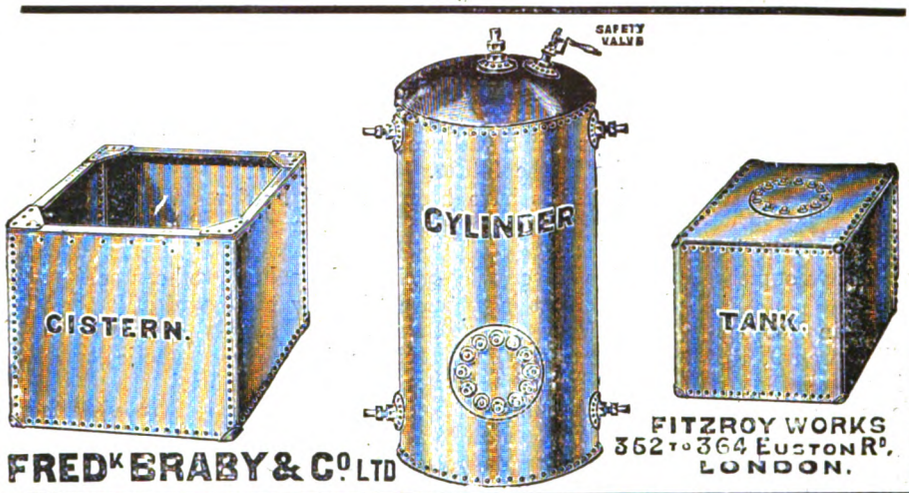
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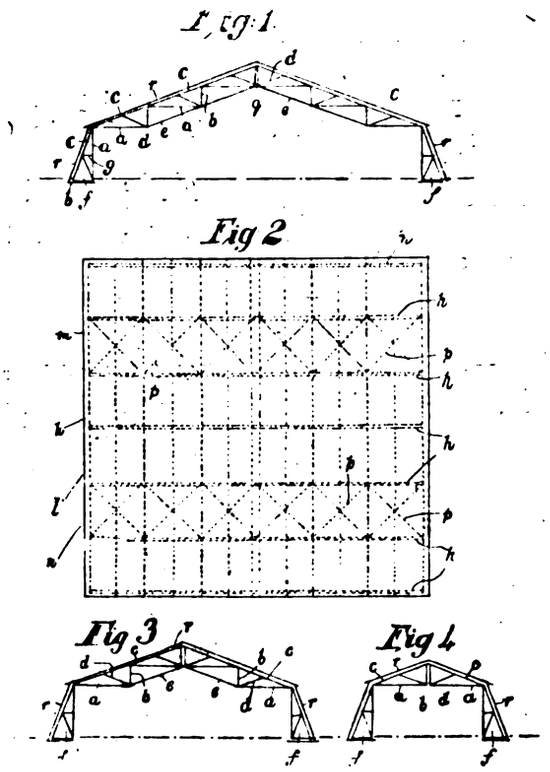
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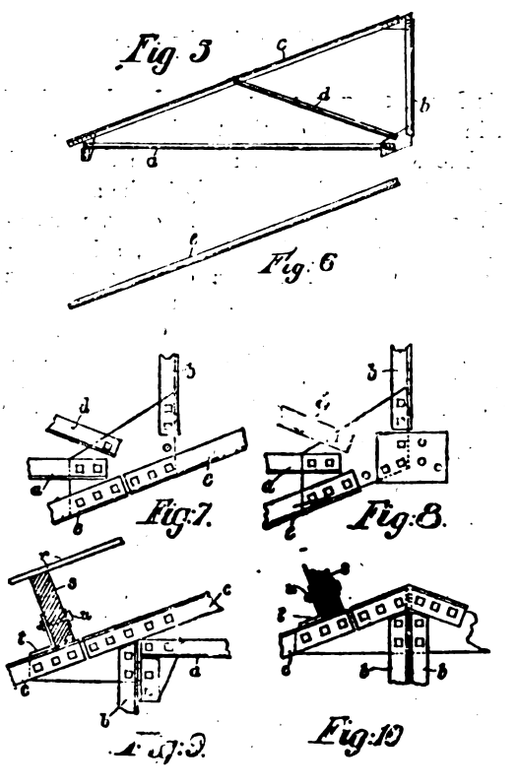
BRITISH PATENT SPECIFICATION.

Selected by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the completed specification.

No. 17,136.—Dec. 6, 1915.—Buildings and like Structures. J. E. Jennings, 28 and 29 Bank Buildings, Kingsway, W.C.—The present invention relates to buildings and similar structures, and has more particular reference to shed construction, that is to say, to the construction of the roof trusses and other framework of structures such as store-houses, temporary dwellings, horse-shelters, hangars, and similar buildings of a nature which renders them necessary to be made as cheap as possible. It has been found that a more important item than actual saving of metal in the cheapening of such structures is any possible saving in labour. The primary purpose, therefore, is to design such structures in such a simple manner that the necessary labour will be reduced to a minimum. By this invention any structures built can be extended afterwards to any amount if it is found that the structure is not large enough for the purposes for which it was designed. Conversely, if it is found that the existing structure is too large it can be reduced in size without any difficulty. It allows a large stock of the necessary structural parts to be laid in, and these parts can be used for different-sized buildings which may be ordered. In this invention roof trusses or similar frame structures are formed of a number of substantially identical triangular frame units assembled with the longest side of each in line to support the sloping roof surface, and with the angles opposite these sides connected together by tie members, the triangles being jointed together at adjacent corners. The triangular frame units have a median bar connecting one angle of the triangle with the opposite side. Fig. 1 is a diagrammatic end elevation of a cross frame for a building. Fig. 2 is a plan of fig. 1. Fig. 3 is a similar view to fig. 1 of a smaller frame using a less number of the same units as fig. 1. Fig. 4 is a similar view of a still smaller structure. Fig. 5 shows to a larger scale a single unit of which the structure shown in figs. 1 to 4 is made up. Fig. 6 shows the tie member which is necessary in some of the structures. Figs. 7 to 10 are details showing some of the necessary joints and the method of securing the roofing. The units of which the structures are made up comprise substantially a frame in the shape of a right-angled triangle as seen best in fig. 5. Conveniently, one side *a* is 12 feet long, a second side *b* 4½ feet long, so that the hypotenuse *c* is approximately 13 feet. These sides are formed of angle iron or iron of similar section, and at the corners bolted joints may be made as shown, of any well-known form used in connection with ordinary roof trusses. An auxiliary member *d* is employed in each frame, extending from approximately the middle point of the hypotenuse *c* to the junction of the sides *a* and *b*. The member *d* can generally be of smaller cross-section than the sides *a*, *b*, *c*. In building up a roof truss such as shown in figs. 1 to 4 a number of these units are shown for each side of the roof. If units of this size are used in the manner shown in fig. 1 the span of the roof truss would be 72 feet, as there are three of the 12-feet units on each side of the roof. The frames are so placed that the hypotenuse *c* of each frame lies along the slope of the roof on either side. Therefore, of the other two sides, the long sides are horizontal and the short sides *b* are vertical. To complete the roof truss it is necessary to connect the junction of the sides *a* and *b* of one right-angled triangle to the corresponding junction of the next frame unit by means of a simple tie member *e*, shown to a large scale in fig. 6. In the roof shown in fig. 1 having a span of 72 feet it is clear from the drawing that four of the tie members *e* are necessary. This completes the roof truss proper, and the side frame needs in addition suitable posts at each outer extremity. As shown in the drawings, the posts *f* are made up of one of the frame units of the structure. Here, however, the hypotenuse *c* is still sloping, while the longer of the other sides *a* is vertical and the shorter *b* is horizontal. In addition to the auxiliary member *d* in this case a further compression member *g* is found to be necessary. Exactly identical units could be employed for making a roof truss for a 48-foot span. An example of this is shown diagrammatically in fig. 3. Here it is obviously only necessary to have two of the frame units on each side of the roof truss, and then, of course, only two of the tie members *e* are found to be necessary. In other respects the construction is the same as shown in fig. 1, especially for the posts *f*. In fig. 4 the same frame unit is shown for making a truss of 24-feet span. In this case, of course, only a single 12-feet frame unit is necessary on each side of the roof truss, and no tie members like *e* are required. Fig. 7 shows a joint designed for the right-





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angle corner of each frame unit, showing also how the tie members *e* are connected to the frames. In fig. 8 a special type of joint is shown where the right-angled corners of the two middle frame units are connected together: for example, at the point *q*, fig. 1. Fig. 9 shows the usual type of joint for the corners of frame members where the hypotenuses are connected, while fig. 10 shows a similar joint at the ridge of the roof. The roofing is shown diagrammatically at *r* in figs. 1, 3, and 4, and more clearly in fig. 9. Wood purlins *s* (figs. 9 and 10) arranged on edge can be placed across the trusses running longitudinally of the building. The rood purlins *s* may be used at the junction of consecutive frame units.—Dec. 20, 1916.

THE LATE RIGHT HON. ROBERT YOUNG.

WE regret to announce the death of the Right Honourable Robert Young, which took place on the 21st instant at his residence, Rathvarna, Chichester Park, Belfast. Mr. Young, who had reached the venerable age of 94 years, had lived in retirement for some time, but he enjoyed good health up to three or four days ago, when he caught a cold, which compelled him to take to his bed. The following facts are given in the "Belfast News Letter."

The late Mr. Young was a native of Belfast, having been born in High Street on the 22nd February, 1822. He belonged to a family which settled on the Hertford estate, adjacent to Lough Neagh, early in the seventeenth century. His father was Mr. James Young, who, after serving his apprenticeship with his uncle, a bleacher at Glenavy, started business on his own account as a warehouseman in Belfast in 1795. The firm founded by him is still in existence, under the style of Messrs. Young & Anderson, with premises in Donegall Street. Mr. Robert Young, the subject of the present notice, received his early education at the old Belfast Academy. On leaving the academy Mr. Young went to Glasgow, and here he had as his mathematical teacher Professor James Thomson, father of Lord Kelvin. He completed his collegiate education in 1841, when he returned to Belfast, and was indentured to Sir Charles Lanyon, who was then the County Surveyor of Antrim, and who had as another pupil at that time Mr. William H. Lynn, the eminent architect, who died comparatively recently after a very distinguished professional career. The first work of importance with which Mr. Young was connected was the construction of the Queen's Bridge, which was built under the joint supervision of Sir Charles Lanyon and Mr. Frazer, the surveyors for Antrim and Down respectively. The deceased gained further experience of his profession in 1845, when the railway from Belfast to Ballymena was constructed. So great was the confidence reposed in him, even at that early stage in his career, that he was put in charge of a section of the work between Belfast and Antrim, a very serious responsibility for a young man who had still his reputation to make. In 1849 he was appointed contractors' engineer in connection with the construction of the railway between Mullingar and Athlone, and this necessitated his removal, for the time being, to the latter town. A few years later Mr. Young once more turned his face to the Northern capital, and this time he determined on settling down here permanently. He accordingly began in practice as an architect and civil engineer, and after a lapse of about ten years Mr. John Mackenzie, who had served his apprenticeship with him, joined him as a partner, the firm being known as Messrs. Young & Mackenzie. Many public buildings, churches, and mansions now bear testimony to the success achieved by the firm and testify to the architectural skill and taste of the partners, including Mr. R. M. Young, J.P., the only son of the founder, who has in various ways followed closely in his father's footsteps. Amongst the structures designed by them may be mentioned the Assembly Buildings, the Scottish Provident Buildings, the Belfast Royal Academy, the Ocean Accident Buildings, Messrs. Robinson & Cleaver's handsome establishment, and the King Edward Memorial at the Royal Victoria Hospital.

His extensive practice naturally made very heavy demands on Mr. Young's time, but notwithstanding this he was able to indulge his taste for literary, antiquarian, and scientific studies, and he undertook a good deal of research work in connection with these pursuits. So far back as 1852 he had the distinction of reading a paper on a subject of archæological interest before the members of the British Association, which met in Belfast in that year. Like many other members of his profession, he showed a taste for water-colour painting, and on some of his early sketching excursions he had for his companion one of his nephews who was afterwards appointed the British Ambassador to the United States—the present Viscount Bryce. Mr. Young contributed a number of papers to the Proceedings of the Society of Antiquaries in Ireland, of which he was a Fellow; and, a clever musician, he gave active support to the movement for the preservation of ancient Irish airs. He was regarded as an authority on Irish literature, and his library was enriched by a valuable collection of ancient books and manuscripts. In politics he was a Liberal of the old school, whilst in religion he was a Presbyterian, being a member of the congregation of Duncairn Church. He was appointed a member of the Irish Privy Council in 1907, and was also a magistrate for the County of Antrim.

Personally he was one of the most modest and unassuming of men, and he had an old-world charm of manner which endeared him to all who were brought in contact with him.

VARIETIES.

MR. MERVYN MACARTNEY, F.R.I.B.A., delivered a lantern lecture on "St. Paul's: Its Building and Builders," before the London and Middlesex Archæological Society on Wednesday last at the Bishopsgate Institute.

MR. ROBERT WILLIAMS, of 24 Harthill Avenue, Liverpool, builder, formerly of Berwyn, Woodlands Road, Aigburth, Liverpool, who died on October 15 last, left estate of the gross value of £11,184, of which £664 is net personalty.

THE Defence of the Realm War Losses Commission have given their decision in the application of Messrs. Adams & Son, Gloucester, timber merchants, who claimed £15,217 as compensation in respect of requisition of their premises by the War Office. They were awarded £6,698.

THE name of Lieutenant F. G. Sainsbury, Royal Engineers, appeared in the New Year's list as "mentioned in despatches." Mr. Frederick G. Sainsbury, who previous to the outbreak of war successfully carried on the practice of architect and surveyor in Friar Street, Reading, was well known for his untiring work in connection with the 1st Berks Troop Boy Scouts. He has been in France for the past sixteen months.

THE Duke of Westminster has, it is said, decided not to remove his pictures from Grosvenor House during its occupancy by the Ministry of Food. Each picture will be encased in a composition in which a quantity of asbestos is mixed, thus rendering it fire resisting. The substance is almost as hard as concrete, and there is no fear of any of the treasures coming to harm when enclosed in the thin slabs of this material.

IN connection with the question of war bonus between the masters and men of the building trades in Edinburgh, Leith, and district, intimation has been received from Sir George Askwith stating that a single arbitrator will be appointed forthwith to consider the matter locally. The men's claims have been before the master builders since October, and, no settlement being arrived at, the intervention of Sir George Askwith was invoked on December 5 last. The Munition Act stipulates that disputes so reported should be dealt with within twenty-one days, and meetings of the men had been called to consider what steps should be taken in view of the failure to appoint an arbiter as requested. These meetings have, however, been cancelled pending the arbiter's decision. About 2,000 men are said to be involved in the matter at issue.

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THE
Architect and Contract Reporter.
FRIDAY, FEBRUARY 2, 1917.

EDITORIAL NOTICES.

The Editor will always be pleased to examine drawings or articles with a view to publication, but cannot be responsible for the safety of those sent, though every reasonable care will be taken. Contributors desiring payment should clearly state their wishes. No payment will be made until after publication, and a commission to prepare articles or drawings does not necessarily imply acceptance or approval.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

We have upon our staff a very eminent Barrister, who will be glad to answer in the columns of this paper any legal question that may be of interest to our readers. All letters must be addressed "Legal Adviser," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

TENDERS, ETC.

*** *As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than* 2 P.M. *on Thursdays.*

CONTRACTS OPEN.

CARLISLE.—Feb. 5.—For proposed alterations to the Fusehill and Harraby Hill institutions for the Carlisle Board of Guardians. Mr. G. Armstrong, architect, 24 Bank Street, Carlisle.

IRELAND.—Feb. 28.—For erection of new bathrooms, lavatories, &c., at the Louth County Infirmary. Mr. V. J. O'Connell, M.I.M. and C.E., architect, Earl Street, Dundalk, and Harbour Office, Newry.

ISLE OF WIGHT.—Feb. 10.—For the repair of the esplanade at Freshwater Bay, for the Freshwater Parish Council. Mr. J. Gilbert, clerk, Attabella, Heathfield Road, Freshwater, I.W.

SHEFFIELD.—Feb. 6.—For the supply of materials and works required in connection with the erection of a transformer sub-station in Newhall Road, for the Electric Supply Committee. Deposit 10*s.* 6*d.* Mr. S. E. Fedden, general manager and engineer, the Offices, Commercial Street, Sheffield.

WALES.—Feb. 10.—For altering 17 North Street, Dowlais. Mrs. Evans, 41 North Street, Dowlais.

AT the monthly meeting of the Old Glasgow Club, Mr. James Paton, former curator of Glasgow Corporation Art Galleries and Museums, read a paper on "Glasgow Corporation and the Cathedral." Mr. Paton pointed out that the credit of the preservation of the Cathedral at the time of the Reformation was unquestionably due to the Town Council. When the Reformation storm passed over the city in 1560 the Cathedral was left a huge empty shell, deprived of every fitting and ornament. For a few years it was left at the mercy of the elements, and it would have gone to wreck but in 1574 the Town Council and the citizens patriotically resolved to undertake the heavy task of its maintenance and preservation. Accommodation for three separate congregations—the Inner High Church, the Barony, and the Outer High Church—was carved out of the building, and that arrangement continued till the end of the 18th century. After three centuries of struggle the Town Council was able to hand over to the guardianship of the State the great church substantially as we see it to-day.

GLASGOW HOUSING SCHEMES.

IMPORTANT resolutions were adopted last week at a meeting of the special committee of Glasgow Corporation on Housing and General Town Improvement. The appointment of the committee was consequent upon the remarks on the housing problem in the city made by Mr. Hugh Reid in accepting office as Dean of Guild in October last, and the letter on the same subject which the Town Clerk addressed to the Corporation.

The committee agreed to recommend the Corporation to approve of the suggestion contained in Sir John Lindsay's letter as to the appointment of two outside architects, known to be capable of dealing with the subject of the housing of the working and poorer classes and with general town improvement, to act in conjunction with officials of the Corporation in the consideration and submission of plans of the city in connection with the proposed erection of sanitary dwellings for the working, labouring, and poorer classes, and the demolition of slums.

A motion was submitted that the committee forthwith proceed with the erection of twenty or thirty tenements. An amendment was carried by a large majority that instead of tenements 300 cottage houses be erected in the city on sites to be afterwards determined upon.

In view of the great demand for houses in Glasgow, consequent upon the large number of persons engaged in war work, it was agreed that the Town Clerk should communicate with the Local Government Board as to financial assistance.

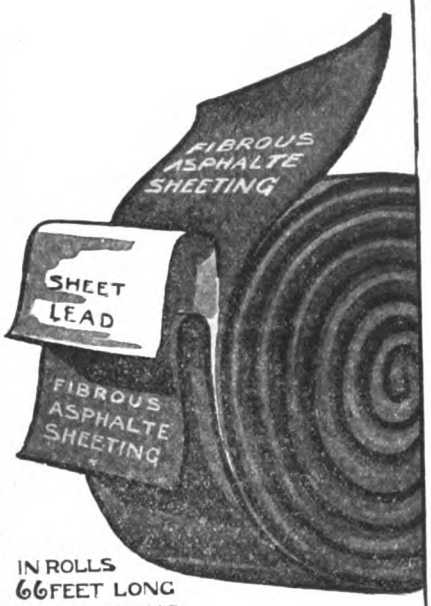
Messrs. Russell & Co., shipbuilders, of Port Glasgow, have purchased Clune Park House and grounds in order to erect on the ground about forty tenements of workmen's room-and-kitchen houses. The buildings will be erected in three square blocks, with garden plots on the side next the river. Two new streets will be formed leading from the Glasgow Road towards the railway, each street having a width of 40 feet. It is only a few years since the Messrs. Lithgow, who own the Russell & Co. establishments, rebuilt the central area of Port Glasgow at a cost of considerably over £100,000.

MR. R. J. THOMAS, shipowner, of Garreghwyd, Holyhead, proposes that the heroism of the men of North Wales who have fallen in the war should be commemorated, and has started a fund with a donation of £20,000. He suggests, in view of the need of scientific training and research after the war, that the memorial should take the form of new science buildings, with special provision for agriculture, in connection with the University College of North Wales, Bangor. The proposal has been submitted to the King, and it also has the hearty approval of the Prime Minister. A general committee for North Wales has been formed. The first meeting will be held at Rhyl on February 14. The £20,000 has been invested in War Loan as the work of construction will not be commenced until the war is over.

AN interesting find of old monumental brasses is recorded in the "Canterbury Diocesan Gazette" as having been made in the north transept of Barham Church. The transept, which is said by Hasted to be St. Giles' Chapel, belongs to Barham Court, and when the rest of the church was restored some years ago the then owner of the Court refused to allow any alteration to be made in it. The Court has now passed by purchase, and the present owner allowed the organ to be moved into this transept. As there were traditions of ancient brasses being in the church the sites of which were no longer known, advantage was taken of the opportunity afforded by the moving of the organ to overhaul thoroughly the flooring of the transept. Under the wood of the flooring the brasses were found. One is the remains of a large figure of a civilian somewhat damaged, but of early date, 1375, and of extreme interest. No figure of the same date and style is remaining in Kent, and it is a notable addition to the fine series in the county. The other brass consists of a man in armour and his widow, and both effigies are in good preservation. The widow's effigy is very like the fine figure of Agnes Molyngton, 1454, still remaining at Dartford. The inscriptions and shields of arms are missing, but part of the crest remains, consisting of expanded dragon's wings. This is expressly noted as the crest of Digges. It is thus almost certain that one, and possibly both, the brasses are for members of the Digges' family, who began buying property in the neighbourhood as early as the reign of Henry III.

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THE EMPLOYERS' PARLIAMENTARY ASSOCIATION.

THE Central Executive Committee of the Employers' Parliamentary Association, in submitting the fifth annual report, treat upon the various phases of work undertaken by the Association during the past year, of endeavouring to shape to some extent their idea of a national trade policy for the future. The Committee sketch a policy of executive action, and state that the most important question is that of increased efficiency, both on the part of employers and of the workers. The solution of this can only be found in co-operation among employers and close understanding and agreement with the workers, and every effort in future should be directed to that end. The Committee, however, have felt for some time the need for a slackening of the purse-strings of the bankers for the benefit of British manufacturers. Although our financial system of the past has been tried and found trustworthy, yet there is little or no doubt but that the lack of financial support has prejudiced our industrial enterprise in many markets. If increased trade with Russia, Italy, South America, and other countries is desired, long credits are necessary. Under the present system they are impossible. The proposed British Trade Bank, if quickly established, will supply the need.

The report deals with various other topics.

In conclusion (adds the report) your Committee would venture to sound an optimistic note as regards the future. It cannot be forgotten that great wars in the past have often heralded the dawn of a period of industrial and commercial prosperity. The American Civil War was followed by an unprecedented rise to industrial eminence of that country. The war of 1870-71 has been utilised by Germany as a stepping-stone to a great industrial position. Signs are not wanting that an industrial regenerative spirit is operative in more than one of the Allied belligerents. Russia, unprogressive, despotic, reactionary, before the war, has by her proclamation concerning Poland, by the great work accomplished by the Zemstvos under the ægis of the Government, by her strong internal measures relative to the vodka traffic, afforded unmistakable evidence of forthcoming democratic commercial strength. France is not the France of pre-war times, and Italy promises renewed vigour. The British Empire has raised an army on a Continental scale, the energising influence of the Ministry of Munitions has revealed her industrial power, old methods have been scrapped, and our productivity has attained almost incredible dimensions. The output of industries other than munitions has been sustained in a way little short of marvellous, considering that the most vigorous of our manhood has been withdrawn for the recruitment of the defensive forces of the Crown. Your Committee are confident that peace will offer great opportunities for industrial and commercial advancement for the Empire. The resources of the Empire are unrivalled. The cessation of hostilities will and must bring about the more thorough development of these resources. There must be no narrow insular view taken of the future. This country must think in terms of Empire and not of the United Kingdom. Our overseas possessions are ready to act with us in peace, as they have supported us so nobly during war. Your Committee, in making these observations, preserve a neutral attitude with respect to past fiscal controversies; they desire only to reiterate their oft-repeated assertion that the only way to secure the consummation of these ideals is to organise the producers as a whole.

The report is signed on behalf of the Central Executive Committee by—Charles W. Macara, president; W. Peter Rylands, vice-chairman Central Executive Committee; John Haworth, general secretary.

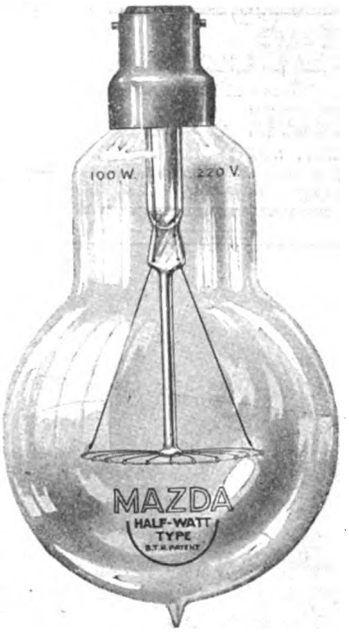
THE Goole Development Committee report that a large engineering firm in the North of England have practically decided to acquire a site for works at Goole. The Committee are urging upon the Ministry of Munitions the suitability of Goole for munition works.

LIGHTING ECONOMY.

RECENT increases in the prices charged for gas and electricity emphasise the necessity for economy in consumption. This cannot be successfully done, in the case of business premises and factories, by cutting down the amount of illumination. Fortunately the introduction by the British Thomson-Houston Company of the Mazda Half-Watt type lamp makes it possible to obtain about eight times the light for the same cost that could be secured by the original carbon filament lamp. The new lamp has for its filament a closely-wound spiral of pure drawn tungsten wire, which operates in an inert gas instead of the usual vacuum. The Half-Watt type lamp gives about twice the lighting effect of the best previous metal filament lamps for the same current consumption.

Users who required a large volume of light were previously obliged to adopt arc lamps, but the Mazda Half-Watt type lamp offers a very advantageous alternative, and is adapted for every class of industrial illumination. Its light is perfectly steady, it requires no trimming or attention, has no moving parts, and involves no fire risk.

Owing to the intense brilliancy of the light (which closely resembles daylight), the eyes should be protected from the direct rays by the use of suitable globes and reflectors. Where the ceiling is white and the walls are



not too dark, the most effective system is indirect lighting by the Eye-Rest system. The Mazda Half-Watt type lamps are concealed in an opaque bowl and equipped with X-Ray silvered glass reflectors. The latter reflect all of the light to the ceiling, from which it is diffused throughout the room.

A pleasing alternative system is to use translucent bowls of glass which reflect part of the light to the ceiling and diffuse the remainder through the glass.

The new lamps, in the smaller sizes, will fit the ordinary holders and are equally as strong as any other electric lamps, while their extraordinarily high efficiency is not secured at the expense of durability. They are available for all commercial voltages and on either direct or alternating current supply, their slight extra cost being saved very quickly by the smaller current they consume to give the same or increased light, as compared with the lamps in use at present.

Mazda Half-Watt type lamps can be obtained from any electrical dealer, while the makers offer the services of their illuminating engineering department free of cost to any firm wishing to arrange their lighting system.

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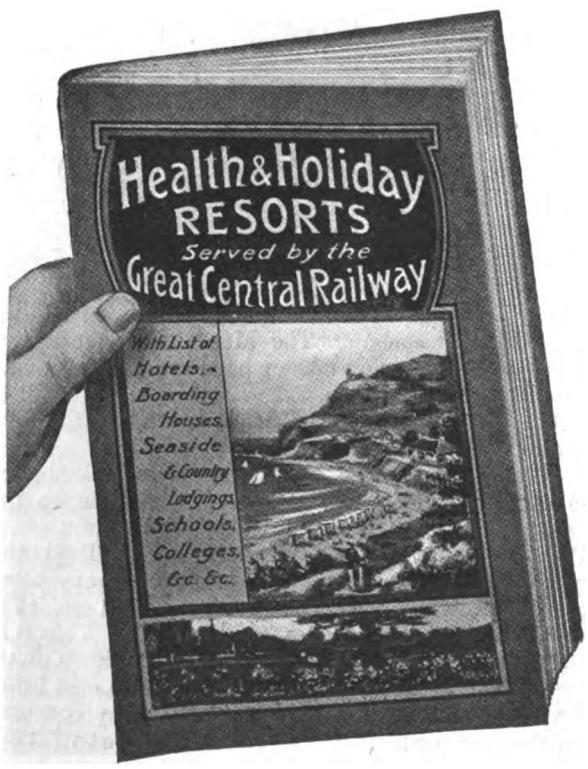
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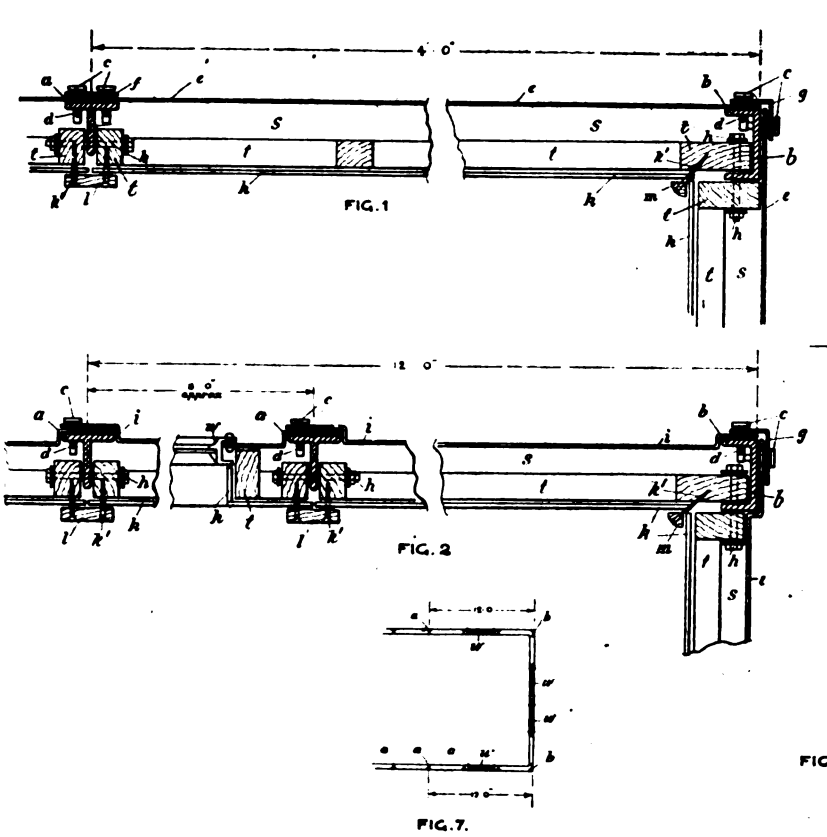
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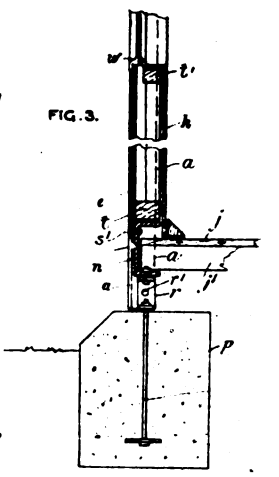
BRITISH PATENT SPECIFICATION:

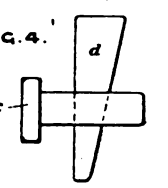
Selected by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

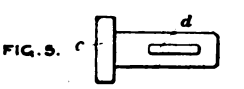
The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the completed specification.

No. 102,750 (678, Jan. 15, 1916).—Construction of portable or temporary buildings.—W. A. Harper, 13 St. Helen's Place, E.C., consulting engineer, and R. J. Shield, 43 Nevern Place, Earl's Court, S.W., architect.—This invention relates to portable or temporary huts or similar buildings for military, hospital, and similar purposes which can be rapidly erected and quickly dismantled and removed elsewhere. This invention provides a simplified and inexpensive construction, and one which facilitates erection and dismantling. Sheet metal wall-sections or panels which have flat sides or edges are secured flat upon the outer face of the angle iron or channel section girder, and it is not necessary to bend the sheet-metal plates to conform to the inside face of the outer flange of the girder. The outer walls are secured upon the outer face of the angle iron or girder by means of bolts and nuts or slotted staples with cottar pins. The panels along one side of the building can be aligned. The outer walls may, however, be stepped to overlap, in which case the panels can be almost aligned, or an overlapping plate may be employed to cover the ends of adjacent sections of wall. If desired an inner wall of the known type may be employed in conjunction with the external wall. Fig. 1 is a sectional plan of a portion of the building. Fig. 2 is a similar view showing a modified form of panel. Fig. 3 is a sectional elevation drawn to a small scale and showing a suitable base or foundation. Figs. 4 and 5 are a side elevation and plan respectively of a suitable staple and cottar pin. Fig. 7 is a diagrammatic plan of part of the walls of a building, *a a* represent a number of vertically arranged stanchions of T section, and *b b* channel section members, both *a a* and *b b* being secured directly or indirectly to a suitable base or foundation. These members *a* and *b* support the roof truss (not shown). Metal panels *e* having flat sides or edges—*e.g.*, of steel sheets—are secured upon the cross bar of *a*, and metal staples *c* slotted each to take a wedge-shaped cottar pin *d* are shown for this purpose. An overlapping plate *f* may be employed to cover the space between adjacent panels *e*. Where an inner wall is desired, timber rails *t* forming rectangular frames are bolted, or otherwise secured to the remaining member of the T stanchion *a*, with an air space *s* between the panels *e* and timber rails *t*. Asbestos board or the like *k* is fastened upon the timber rails *t* so as to form the internal wall of the building. As will be seen from fig. 3, the members *a* and *b* are secured at bottom to a channel-section girder *n* extending below the wall and for the length of the same, and this girder *n* is bolted or otherwise anchored to a concrete foundation *p*. In fig. 3 is an intermediate channel-section member *r* between *p* and *n*, this member *r* being bolted to both *p* and *n*. A bolt r^1 connects *r* to the web of *a*, and a rivet or set screw s^1 connects *e* to *n*. The metal panels *e* are secured to the cross piece of the T stanchions so as to be parallel with said cross piece, preferably by means of the staples *c*, which have a head and slotted stem, a wedge or cottar pin *d* being driven down into said slot. The cover plate *f* may have between it and the metal panels *e e* a strip of felt or some such material to allow for the expansion of the metal and also to form a more watertight joint. The overlapping or cover plate *f* may also be secured over the facing edges of adjacent metal panels by the heads of the bolts or staples which secure the said panels *e e* to the stanchions *a*. At the corners the timber rails *t* are secured one on each side of the inner of the two parallel members of the channel-section girder, a single bolt *h* serving to secure both timber rails to the girder *b*, and the panels *e e* are secured the one to the outer of the two parallel members of the channel-shaped girder and the other to the connecting member thereof. The asbestos card or board *k* can be attached to the timber rails by screws k^1, and an overlapping cover piece or architrave *l* may also be provided to conceal the joint between adjacent sheets *k k* of asbestos card. A quarter-round bead *m* may be provided on the interior at the corners of the building, and an angle iron or corner piece *g* may be secured at the same places upon the exterior of the building. The roof may be a flat or sloping roof and made of any convenient material. For example, it may comprise a slate roof with metal rafters or an ordinary boarded and felt-covered roof. The external metal panels may be provided with windows *w*, which may be fixed beforehand to the panels *e* by means of bolts or rivets, so that window-fitted panels are ready for assembling. Openings corresponding with the









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windows are provided in the interior wall. With a view to dispensing with the plate *f*, the vertical edges of the panels (see fig. 2) are flanged, so that panels *i* having overlapping flat edges or sides are afforded, the overlapping edges of adjoining panels being secured by means of a single staple *c* to the stanchion *a*. The strip of felt before mentioned may be employed also in this arrangement.—Jan. 3, 1917.

PATENT SPECIFICATIONS.

Selected by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

No. 15,374.—Nov. 1, 1915.—William Taylor, Stoughton Street Works, Leicester. Sawing of glass and like substances. 15,375, Nov. 1, 1915.—Grinding glass and the like materials. 15,376, Nov. 1, 1915.—Apparatus for sawing out glass discs from a plate; and 15,379, Nov. 1, 1915.—Machines for grinding glass.

17967.—Dec. 23, 1915.—Achille Pecard-Chauveau, Amboise (Indre-et-Loire), France. Apparatus for cutting steel bars.

18,108.—Dec. 29, 1915.—F. M Du Plat-Taylor, Tilbury Gardens, Tilbury, Essex. Method of reinforcing corrugated sheet metal and covering the same so as to form reinforced concrete slabs, panels, and the like.

18,141.—Dec. 30, 1915.—C. H. Verity, 168 Briggate, Leeds. Window fastener and wedge.

102,846 (2,345, Feb. 16, 1916).—A. F. Berry, 27 Woodville Road, Ealing. Electric heat radiators.

102,856 (3,528, March 9, 1916).—J. W. Jones, Elmhurst, Honiton, Devon. Door knob furniture.

102,861 (4,682, March 30, 1916).—S. F. Turner, Ltd., and A. J. Dainty, Wellington Works, Dock Lane, Dudley. Domestic firegrates.

102,863 (4,954, April 4, 1916).—Albert Nelson, 2,957 Boudinot Street, Philadelphia. Sawing apparatus.

102,869 (5,887, April 25, 1916).—A. H. Twells, 213 Melton Road, Leicester. Automatic temperature controlling means for heaters, such as liquid heaters, steam heaters, radiators, and the like.

102,874 (6,555, May 6, 1916).—R. H. Harris, c/o Mackinlay & Co., Moorgate Hall, Finsbury Pavement, E.C. Drilling appliances.

102,814 (92, Jan. 3, 1916).—G. E. Clare, architect, 2 College Road, Harrow. Reinforced blockwork beams, floors, and roofs.

102,826 (313, Jan. 7, 1916).—J. E. Clark, 38 Beatrice Street, Toronto. Process for treating fibrous material for the manufacture of compositions suitable for paving and similar purposes.

102,887 (7,740, May 31, 1916).—Joseph Rauwald, John Rauwald, E. H. & F. P. Rauwald, 533 32nd Street, Milwaukee, Wisconsin, and J. G. Rauwald, 823 Lafayette Parkway, Chicago, U.S.A. Safes.

102,910 (12,799, Sept. 9, 1916).—Adolphus Attwood, 13 Arlington Street, Rosebery Avenue, Clerkenwell. Air brushes.

17,786.—Dec. 20, 1915.—Steel Utilities Inc., 58 Freeman Street, Newark, N.J., U.S.A. Machines for coping beams.

22,644.—Nov. 17, 1914.—(Dated under International Convention, Nov. 18, 1913).—L. P. Basset, 43 bis rue des Chesneaux, Montmorency (Seine-et-Oise). —Process for the manufacture of cement or hydraulic lime.

102,671 (5,625, April 17, 1916).—H. N. Davis and W. R. Twigg, The Diamond Foundry, Luton. Gas fires.

102,705 (14,932, Oct. 20, 1916).—Herbert Harrison, 85 Silver Street, Manchester. Economisers for gas cooking stoves.

102,750 (678, Jan. 15, 1916).—W. A. Harper, 13 St. Helens Place, E.C., and R. J. Shield, 4A Nevern Place, Earl's Court, S.W. Construction of portable or temporary buildings.

Any of the above specifications may be obtained from J. D. Roots & Co.

VARIETIES.

Australia House, Strand, has been certified by the Westminster City Council as possessing a sufficient supply of water which is taken from a private well on the premises.

Mr. Joseph Foster Wood, F.R.I.B.A., died on January 26 at 9 Westbury Park, Durdham Down, Bristol, aged sixty-one. He became an Associate of the Institute in 1883, and a Fellow in 1910.

"Wounded—London Hospital, 1915," the war picture by Mr. John Lavery, A.R.A., R.S.A., has been acquired by the Morris Trust for the Dundee Permanent Collection, and was publicly presented on Tuesday afternoon. This is the sixth picture which the Morris Trust has acquired for the Dundee Galleries since 1903.

In these days when all metals are scarce and expensive, the use of reinforced concrete can be substituted with advantage in the building of tanks. We hear that several large concrete tanks have been constructed on the roof of a biscuit factory at Fulham, and that as a precaution against leakage, Pudlo has been used to waterproof the cement.

At the annual meeting of the Timber Trades' Benevolent Society at the London Chamber of Commerce, Cannon Street, Mr. B. G. Elliott, who presided, said the funds of the institution had been very largely augmented, and the whole of the nine candidates for a pension would be elected without the trouble of a canvass.

Mr. Frederic William Manuelle, head of A. & F. Manuelle, granite merchants, of Bishopsgate Street, and of Aberdeen, Guernsey, and Norway, who were connected with the building of the *Morning Post* offices in London, the Ritz Hotel, London, the Royal Liver Buildings, and the Cotton Exchange, Liverpool, died on August 21, leaving estate valued at £79,389 (net personalty nil).

With the Mayor of Stepney in the chair, Mr. W. R. Davidge and Mr. Arthur Crow, of the London Society, on the 30th ult., at Toynbee Hall, addressed the members of the Stepney Council of Public Welfare on the subject of "London as it Ought to Be." Mr. Davidge urged the necessity of providing easier exits from London. Mr. Crow dealt largely with the question of arterial roads and their relation to slum dwellings.

The housing problem in Edinburgh was discussed at a meeting of the Lord Provost's Sub-Committee of the Town Council of Edinburgh last week. Various suggested remedies were considered, but none was found satisfactory. The general opinion was that the reconstruction of shops and offices into dwelling-houses would not meet the case. The only result of such a step would be to depreciate the value of the property so treated. In addition it was felt to be an expensive and wasteful method of tackling the problem.

All the nearly 600 houses which were erected last year, at Stoke Heath, Coventry, for munition workers, are occupied, and the Ministry of Munitions has placed before the City Council a scheme for building 200 dwellings on the south-east side of the city, off Park Side. The Minister is prepared to bear the cost, with the suggestion that the Corporation should be willing to take over the properties after the war. The Council is recommended to accept the proposal, subject to their having the benefit of State aid as favourable as that which may be given to other schemes. In the Stoke Heath building the Ministry paid the difference between pre-war prices and those then existing.

The Managing Committee of the South-Eastern and Chatham Railway Companies have redeposited their rejected Bill of last Session for powers to strengthen Charing Cross Railway Bridge. The preamble declares that the present bridge "has become inadequate to meet the requirements of the traffic using the same." Although the deposited estimates for the proposed "strengthening" are identical with those deposited for the rejected scheme, the Bill for next Session differs from the Bill of last year by providing that "the company shall construct the six spans of the bridge over the river in the form of a continuous curve for the soffit of each span." Six other clauses, not found in the Bill of last year, are in the new Bill for the protection of opposing petitioners to the scheme of last year. The estimated cost of the work is given at £167,000, which is to be provided out of any moneys "which may not be required for the purposes for which the same were authorised to be raised." In anticipation of opposition to the present scheme the Chairman of the Managing Committee has already invited Members of Parliament to the Charing Cross Hotel "to look at the model and hear the facts."

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THE
Architect and Contract Reporter.
FRIDAY, FEBRUARY 9, 1917.

EDITORIAL NOTICES.

The Editor will always be pleased to examine drawings or articles with a view to publication, but cannot be responsible for the safety of those sent, though every reasonable care will be taken. Contributors desiring payment should clearly state their wishes. No payment will be made until after publication, and a commission to prepare articles or drawings does not necessarily imply acceptance or approval.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

We have upon our staff a very eminent Barrister, who will be glad to answer in the columns of this paper any legal question that may be of interest to our readers. All letters must be addressed "Legal Adviser," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

TENDERS, ETC.

**** As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.*

CONTRACTS OPEN.

BOURNEMOUTH.—Feb. 19.—For taking off existing and providing new roof and other works at Branksome Lodge, Avenue Road. Deposit £1 1s. Mr. F. P. Dolamore, borough engineer and surveyor, Municipal Offices, Bournemouth.

EVESHAM.—Feb. 15.—For alterations and improvements to the roofs and the exterior of Lanesfield, Greenhill, for the Governors of Prince Henry's Foundation. Mr. R. E. Spires, surveyor, Swan Lane, Evesham.

HARROGATE.—March 5.—For the supply and erection in the electricity works of a by-product steam boiler, overhead coal bunker, coal conveyor and structural steelwork, for the Electricity Committee. Deposit £2 2s. Mr. G. Wilkinson, M.I.E.E., M.I.M.E., borough electrical engineer, Corporation Electricity Department, 33 Swan Road, Harrogate.

HOLBEACH CLOUGH.—For erection of thirty-three pairs of cottages near Holbeach Clough, Lincolnshire. Approximate distance from Holbeach Station from three to five miles. The work will be divided into sections of three pairs, and tenders may be submitted for one or more sections. It is proposed to commence building in April, and the works must be completed by the end of September 1917. The Secretary, Board of Agriculture and Fisheries, 4 Whitehall Place, London, S.W.

IRELAND.—Feb. 12.—For erection of an addition to creamery, for the Ardagh Co-operative Dairy Society, Ltd., Ardagh, co. Limerick. Mr. J. O'Malley, B.A., B.E., architect, 110 Glentworth Street, co. Limerick.

IRELAND.—Feb. 28.—For erection of new bathrooms, lavatories, &c., at the Louth County Infirmary. Mr. V. J. O'Connell, M.I.M. and C.E., architect, Earl Street, Dundalk, and Harbour Office, Newry.

ISLE OF WIGHT.—Feb. 10.—For the repair of the esplanade at Freshwater Bay, for the Freshwater Parish Council. Mr. J. Gilbert, clerk, Attabella, Heathfield Road, Freshwater, I.W.

LONDON.—Feb. 23.—For alterations to Nos. 5 and 6 Scrubbs Lane in connection with fireproofing two front rooms at No. 6 to be used as an electric sub-station for the Hammersmith Borough Council. Mr. H. Mair, Borough surveyor, Town Hall, Hammersmith.

NEWTON ABBOT.—Feb. 17.—For alterations and additions to their depot in Salisbury Road, for the Urban District Council. Mr. C. D. White, surveyor, Town Hall, Newton Abbot.

SCOTLAND.—Feb. 15.—For the several works required in repairing a portion of the river embankment on the south side of the River Clyde between Dixon's Pumping Station and Polmadie Burn, for the Glasgow Corporation. The Office of Public Works, 64 Cochrane Street, Glasgow.

STOCKPORT.—For alterations to branch premises at Wood Street; also for alterations to premises at rear of Nos. 46 and 48 Chestergate, for the Stockport Industrial and Equitable Co-operative Society, Ltd. Mr. S. Taylor, general secretary.

WALES.—Feb. 16.—For an extension, in reinforced concrete, of the Hayes sub-station (basement of the fish market), under the adjoining roadway, for the Cardiff Corporation. The City Engineer's Office, City Hall, Cardiff.

"A THOUSAND AND ONE USES FOR GAS."

WITH the January issue of their free monthly brochure "A Thousand and One Uses for Gas," the British Commercial Gas Association of 47 Victoria Street, Westminster, S.W., bring to an end, for the time being, their very valuable series of notes on the use of incandescent-gas lighting in factories and workshops. The last word on the subject has, of course, by no means been said, and further developments are to be expected in the methods of supplying gas at high pressure, a system which has given a new and prosperous lease of life to the illuminating branch of the gas industry; but it is none too soon for factory owners and managers to study the question as ably set forth and illustrated in "A Thousand and One Uses for Gas," for there can be little doubt that the end of the war will see the beginning of legislation based on the recommendations of the Home Office Committee on Industrial Lighting. How efficiently and economically incandescent-gas lighting fulfils all such requirements can be easily gauged from the facts and figures given in the above-mentioned series, the concluding number of which deals chiefly with the use of gas lighting in textile mills and the work of the illuminating engineering movement in its industrial bearing.

APPOINTMENT OF DISTRICT SURVEYORS.

THE Building Acts Committee of the London County Council have prepared a report of action taken during the three months ended December 31, 1916. Under the heading of "District Surveyors" there appear the following items:—

We have extended for another year the period of office of the undermentioned district surveyors who have passed the retiring age limit—Mr. F. Hammond (district of Hampstead), Mr. H. Lovegrove (district of Islington, South, and Shoreditch), and Mr. F. W. Hamilton (district of Paddington).

We have reappointed for another year Mr. J. Goodchild, interim district surveyor for the district of Islington, North, and Mr. A. W. Tanner, interim district surveyor for the district of St. George-in-the-East. These two officials have passed the retiring age limit, but their services have been retained for several years past in a temporary capacity.

We have agreed to Mr. E. A. Young, district surveyor for the district of Catford, and interim district surveyor for the district of Camberwell, North, continuing to give lectures at the Camberwell School of Arts and Crafts, until July 31, 1917.

We have agreed to Mr. E. A. Young, district surveyor for the district of Catford, continuing to act during the pleasure of the Council as interim district surveyor for Camberwell, North.

We have approved, under Section 141 of the London Building Act, 1894, the situation of district surveyors' offices in the undermentioned cases—district of Hammersmith, 18 Queen Street, Hammersmith; and district of Poplar, All Saints, 94 Bow Road, Poplar.

We have consented under Section 142 of the London Building Act, 1894, to the appointment of deputy district surveyors in thirteen cases.

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THE NATIONAL FEDERATION OF BUILDING TRADES EMPLOYERS OF GREAT BRITAIN AND IRELAND.

THE thirty-ninth annual report of the above Federation was presented at the annual general meeting held at the Connaught Rooms, Great Queen Street, W.C., on December 31. Amongst the various paragraphs are the following:—

The Federation comprises the same County Federations as last year, but further increases have taken place in the membership—Northern Counties' Federation, North-Western Federation, Yorkshire Federation, Midland Federation, London Federation, Southern Counties' Federation, Eastern Counties' Federation, South-Western Counties' Federation, South Wales Federation, Belfast Association, Dublin Association, Colonial Members, the South African Federation, the New South Wales Association, Honorary Members, the Scottish Federation. The total number of local associations affiliated is upwards of 182, with an aggregate membership of about 6,600.

State of Trade.—The present state of the building trade may be fairly described as grave. The effect of the order of the Ministry of Munitions *re* Licence to Build is that building operations, except as regards Government work, will soon be at an end. Unfortunately the Government has not distributed its constructional work throughout the trade, as was done in the engineering trade, with the result that some firms are overwhelmed with work while a large number have practically nothing to do. Representations have been made thereon. Many interviews with officials of Government Departments and much correspondence have been necessary in connection with the many questions raised by the war. Indeed the way the activities of all parts of the Federation have been maintained since the war began, the continuous growth of membership, the many new questions which have had to be met and dealt with, and the urgent labour problems which continually arise, make it clear that the existence and maintenance of a powerful organisation of building trade employers is more than ever necessary if the interests of the trade are to be properly cared for. As showing how the work of the Federation has increased since its headquarters were removed to London, it may be mentioned that the correspondence this year is just treble what it was the year we came to London and is the highest in the history of the Federation.

Boards of Conciliation.—The National Board has sat 7 times and dealt with 33 appeals, giving a decision in every case; particulars of these have been circulated already.

The National Demarcation Committee held its inaugural meeting in March, when formal business was transacted. No appeals have yet come before this committee.

The National Joint Committee of Appeal has held one meeting and dealt with formal business.

The following summary gives an indication of the work of the Centre Boards of Conciliation:—

The Northern Centre dealt with 73 cases during the year, which were disposed of as follows:—Settled by the Board, 64; referred to higher Board, 9.

The Midland Centre Board dealt with 8 cases during the year, which were disposed of as follows:—Settled by the Board, 2; referred to higher Board, 2; ruled out of order, 4.

The S.E. Centre Board has sat three times and dealt with 24 cases:—Settled by the Board, 14; referred to higher Board, 10.

The Midland Demarcation Committee held the usual annual meeting; there were no appeals however.

The S.E. Centre Committee has held two meetings—one inaugural and the other to deal with an appeal from London, but no decision was reached and the matter was dropped.

Wages and Hours of Labour.—The comparative statement of wages and hours of labour is no longer published, but the Secretary keeps a card record of such changes as are reported to him, and will be pleased to answer specific inquiries.

Forms of Contract and Sub-Contract.—As regards the former, the proposals of the North-Western Federation were sent out to the County Federations for consideration and report. The general opinions expressed were decidedly favourable to these proposals, but a number of useful suggestions for their further amendment having been received the Administrative Committee referred them to the Contract Sub-Committee for further examination and report.

As regards the latter, the negotiations between the Sub-Committee representing the Confederated Sub-Contractors, the Institute of Builders and this Federation are nearly completed, and it is hoped shortly to report to their respective main bodies that complete agreement has been reached.

Subscription.—The annual budget was submitted to the autumn meeting of the Administrative Committee which decided to recommend that the subscription for 1917 remain unaltered.

The Belgian Builders' Relief Fund.—Up to December 30, 1916, the total amount received for account of this fund was £3,205 17*s.*, and the total amount disbursed in assisting refugee members of the Belgian Federation of Building Trade Employers was £2,916 5*s.*, leaving a balance at credit of £289 12*s.* The outgoings per week are £13 at present distributed among ten families.

Munitions of War Amendment Act.—The extension of the provisions contained in Section 7 of the principal Act to the construction, alteration, or repair of works of construction and buildings for naval and military purposes, of buildings in which munition work is, or is intended to be, carried on, the erection of machinery and plant therein, and the erection of houses for the accommodation of persons engaged or about to be engaged on munition work, has brought both employers and workmen in our industry under the further obligation to submit any differences, which they fail to adjust between themselves, to the determination of an arbitrator appointed by Government, so that in cases where irregular demands for war bonus are put forward by the workmen and refused by the employers resort lies to compulsory arbitration under this Act, but it is desirable to emphasise the fact that the decision only affects men engaged as set out above and not necessarily the whole of the trade in the district in which it may apply. In the case of an application of this kind at Birmingham the Government arbitrator awarded a further war bonus of 1*d.* per hour to all trades concerned, so far as engaged as aforesaid, to continue in operation until three months after the declaration of peace.

As the employers had consistently refused to accept an irregular notice or discuss the question of a further war-bonus and only appeared at the arbitration under protest, the case may be regarded as a test defining the present position and is here referred to for the information of our members.

The Finance (1909-10) *Act*, 1910.—This Federation was represented at a non-political conference convened by Sir John Rolleston (Past President of the Surveyors' Institution), Mr. Edwin Evans, L.C.C. (Vice-chairman of the Housing and Working Classes Committee), and Mr. A. W. Shelton, F.A.I., of Nottingham, held in London on November 14, when about forty leading institutions and associations of the country connected with housing were represented.

After considerable discussion of the position and the causes of the present shortage of houses a resolution was carried urging the Government to take prompt steps to remove the legislative provisions of Part I. of the above Act as regards increment value duty, undeveloped land duty, and reversion duty, and to give in every possible way encouragement and support to private enterprise and co-operative effort in the provision of healthy dwellings for the people.

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Finance Act (No. 2), 1915—Excess Profits Duty.—The question of the expediency of an application to the Commissioners of Inland Revenue by this Federation for an increase of the statutory percentage on capital under Section 42, Subsection 1 of the above Act, has been raised by a request from an important branch that the Federation take up this matter generally on behalf of the trade, because under the Act such an application can only be made by a class of trade or business and not by or on behalf of any individual business.

Our branches have therefore been circularised to ascertain their views upon this suggestion and whether in the event of such an application being made they are prepared to support it by the necessary evidence.

Apprenticeship.—Since the last half-yearly report the Institute of Builders has been in negotiation with the Juvenile Advisory Committee in London and with representatives of the London Operative Building Trades which have resulted in the drawing up of an Apprenticeship Scheme which, while based upon the original scheme of the Institute, has undergone important modifications calculated to improve it materially.

The scheme is too lengthy for reproduction here, but has been printed and copies have been sent to the County Federations for distribution to their branches so that the provisions of the scheme may become generally known, and it is hoped, may serve as a model for similar schemes in the various districts. The Institute of Builders is to be congratulated on the good work it has thus far accomplished, and the practical working of the scheme will be watched with much interest by those who are interested in this valuable educational work.

A representative of the Board of Education and of the L.C.C. Education Authority attended the Conference in an advisory capacity.

The Position of Apprentices after the War.—This question was raised at the last half-yearly meeting and a Committee appointed to consult with the representatives of the Operatives' unions thereon. A conference took place on October 10 at which a joint sub-committee was appointed to crystallise into a scheme the opinions expressed at the conference and to submit a report to a further conference to be held in connection with the annual meeting of the National Board of Conciliation, in March 1917.

The Sub-Committee has issued a memorandum embodying its suggestions and copies thereof have been circulated to the parties concerned for their consideration, so that they may instruct their representatives to the next Conference as to their wishes thereon.

Income Tax Deductions.—With a view to enabling members to treat subscription payments made to their trade organisations as a trade expense when making up their returns for income tax assessment, the National Federation has entered into an arrangement with the Board of Inland Revenue by which its Centres or County Federations or Local Associations directly affiliated are entitled to so treat payments made to the National Federation by way of subscriptions or contributions to reserve fund and has recommended those bodies to enter into similar arrangements so that their local associations may do the like. If members will also induce their local associations to similarly arrange they will be able individually to make the like deductions.

Admission of Sub-Trade Employers' Associations to the Conciliation Scheme.—This question having been raised by an application for admission and a principle being involved was remitted by the Council to the A.C. for decision. After prolonged examination the following resolution was adopted and became the decision:—

"That inasmuch as other provision is made for the admission of branch trade employers to membership of the Conciliation Scheme through membership of the National Federation it is not desirable that Employers' National Associations, not in membership with our Federation, should be made parties to the Conciliation Scheme."

Pre-War Contracts.—On June 27 a deputation representing this Federation, the Institute of Builders, and the London Chamber of Commerce had an interview with the Solicitor-General, Sir George Cave, at which the proposals for amending the Defence of the Realm Act sent forward by this Federation in order to remove the hardships resulting from the unexpected liabilities arising under pre-war contracts, were discussed. Sir George Cave, in replying, agreed that we have suffered hardships and risk of serious loss, the present emergency legislation being limited to consequences of the acts of certain Government Departments, although some of these have extended that to granting some relief to contractors. The Local Government Board had encouraged local authorities to do the like and assented to their relaxing their contract conditions and granting relief to contractors, but there were cases as to which the hardship appeared to remain.

While he could not himself promise that any action would be taken he would carefully report to the Premier. The questions asked in Parliament and the replies given elsewhere in this report show what has taken place in regard to this matter.

Licence to Build.—This question has engaged the attention of the Federation throughout the year and was the subject of a resolution at the half-yearly meeting.

In September a movement was started in Liverpool, and subsequently became widespread, to lay before members of Parliament the perilous position in which the trade was being placed by the operation of this order, and eventually the North-Western Federation drew up certain proposals, which were subsequently circulated to the rest of the Federation, having for their object to obtain a withdrawal or amelioration of the order so that a complete stoppage of private building operations might be avoided. These proposals, together with a resolution having a similar object, were considered at a special meeting of the E.C. on December 18. Meanwhile a change of Government had taken place, and there were indications that the situation had undergone a change which made it desirable for the Council to reconsider its position. Eventually the following resolution was unanimously agreed to and was sent to the Premier and the Minister for Labour, accompanied by an offer to support it by a strong deputation representative of the employers and operatives:—

"That in view of repeated expressions of opinion that full efficiency in the conduct of the war is not being attained because of delay in the execution of constructional work, this meeting of the Executive Council of the National Federation of Building Trades Employers, representing over 6,000 of the principal firms in the United Kingdom, desires to tender to the Government the services of the Federation and to place at its disposal the expert knowledge of its members in handling the large bodies of men employed on Government constructional work to facilitate and expedite those works.

"This meeting proposes to act in full concert and co-operation with the representatives of trade unions in the building trades, which it is assured are in full sympathy with the employers on this question.

"It is common knowledge among our members that the present method of executing these works is resulting in inefficiency and delay all round, and this Council is convinced that by the co-operation of representatives of employers and workmen in the building trades accustomed to control large numbers of men this inefficiency, delay, and waste could be avoided."

A reply has not yet been received.

Questions in Parliament.—Through the good offices of Mr. Shepherd the following questions have been put and replied to in Parliament:—

Defence of the Realm Act

(Position of Contractors).

August 21, 1916.—Mr. Peto asked the Prime Minister whether his attention has been called to the judgment in the case of the Metropolitan Water Board *v.* Dick, Kerr & Co., in which the decision of the court was that a contract is not determined by action taken by the Ministry

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of Munitions which renders it impossible to continue its execution; and whether he intends to introduce legislation to define the position of contractors under conditions brought about by the Defence of the Realm Act and other exceptional legislation necessitated by the war?

The Prime Minister: This question is under consideration. A deputation representing certain contractors has been received by my right hon. friend the Solicitor-General, and further information is now being obtained with a view to an early decision on the matter.

Contractors (Solicitor-General's Report).

November 2, 1916.—Mr. Peto asked the Prime Minister whether he has considered the report of the Solicitor-General upon the question of the introduction of legislation to define the position of contractors under conditions brought about by the Defence of the Realm Act and other exceptional legislation necessitated by the war; and, in view of the urgency of the case, whether he is prepared to introduce a Government Bill to deal with the matter at an early date?

The Prime Minister: Yes, Sir, I have had an opportunity of giving some consideration to this Report; but the subject is a complicated one and will require further deliberation. I hope to announce the Government's decision at an early date.

Pre-War Building Contracts.

December 20, 1916.—Mr. Peto asked the Prime Minister whether he is aware that the question of hardship arising out of the state of war in connection with building contracts entered into before the war had been brought to the notice of the late Prime Minister and a draft Bill submitted, and that consideration had been promised; and whether he will undertake that this matter, in view of its importance to one of the largest industries of the country, shall not be overlooked, and, considering its daily increasing urgency, will receive consideration at an early date?

Sir G. Cave: I have been asked by my right hon. friend to reply to this question. The answer to the first part of the question is in the affirmative, and the matter shall receive consideration at an early date.

The following question was also asked:—

Building Trade.

December 4, 1916.—Mr. T. Wilson asked the Secretary of State for War whether, in view of the serious shortage of labour in the building trade and the demand of the Minister of Munitions for skilled and unskilled workmen for the erection of munition works, he will stop for the time being the calling up of men in this industry into the Army?

Mr. Forster: It would not be practicable to take the steps suggested by the hon. member. Arrangements are made for the temporary exemption of men essential for the erection of munition works and other Government buildings urgently required.

Building By-Laws.—A Committee, under the chairmanship of Mr. Herbert Lewis, M.P. (Parliamentary Secretary of the Board of Education), has been appointed to conduct an investigation into the control at present exercised over building works by means of by-laws and special regulations and their effect upon building and development.

As it appears that there are some vacancies upon the Committee (which is not confined to members of Parliament), a letter has been sent to the Chairman asking him to consider the advisability of placing a representative of this Federation upon the Committee, as it is believed he could render useful service by reason of his intimate knowledge of the industry.

Organisation.—There is not much activity reported in this direction since our June issue, but there appears to be a good deal of what might be termed consolidation work going on quietly. One hears of the elaboration and putting into practical shape of regulations in regard to the notification and recording of all tenders, in regard to competitive tendering where no quantities are supplied and the more thorough control of day-work charges, particularly in regard to the time of foremen and as to the scale of profit which should be charged. Attention is being given to the proper carrying out by members in competition of the requirements of the bills of quantities by adding a percentage for use of plant, supervision, and profit to all provisional and p.c. sums contained therein.

The President of the Southern Counties Federation (Mr. Jno. Croad) has taken an active personal interest in organisation work, which has been crowned by an encouraging measure of success, and if he receives an earnest backing from his successors and his confreres of the Organisation Committee, of which he remains chairman, there is much to hope for in that area.

It is a pleasure to be able to welcome the adhesion of another Colonial member—viz. the Master Builders' Association of New South Wales. When the war is over we shall hope to have many of our Australian members at our gatherings, and they may feel assured of a hearty welcome.

VARIETIES.

THE annual meeting of the Sheffield and District Master Painters' Association was held at the Sheffield Builders' Exchange, Mr. S. Talford presiding. The following were elected officers for 1917: President, Mr. Samuel Talford; Secretary, Mr. W. Chatfield (14 Market Street); Treasurer, Mr. E. Elliott.

THE Electricity Committee of the Leeds Corporation recommend the acceptance of the tender of Messrs. Babcock & Wilcox, Ltd., for two water-tube boilers and accessory plant at the new generating station. The amount of the tender is £12,959. The same Committee recommend the acceptance of a tender of £2,600 by Messrs. Wm. Airey & Son for foundations, seatings, and flues, and the Corporation propose to seek powers to borrow £17,128.

THE West Sussex County Council have approved a scheme for strengthening the Norfolk Suspension Bridge at Shoreham at a cost of £29,000. Mr. Howard Humphrey, M.Inst.C.E., the consulting engineer, has made his preliminary estimates on a maximum scale. The work includes the strengthening of the existing foundations (if necessary), the building of one new pier, and a new rigid super-structure with four spans.

THE Board of Education have informed the Plymouth Education Authority that a considerable building programme must be carried out as quickly as possible when circumstances permit. It appears to them that the minimum new accommodation that will be needed is:—(1) A new building in Devonport for the Municipal Secondary School for Girls; (2) a considerable extension of the Devonport High School for Boys; (3) a new building in Plymouth to allow of the Corporation Grammar School being divided into separate schools for boys and girls. The Board point out that after the general plan has been decided upon, sites could be looked for and secured, and preliminary plans for the buildings could be produced.

THE annual meeting of the Edinburgh Diocesan Council was held last week in the Royal Arch Hall, Edinburgh. Bishop Walpole, Edinburgh, presided, and, in his address, spoke of the completion of St. Mary's Cathedral. It had been a difficult piece of work to accomplish, he said, and it was very gratifying that there had been no accidents, despite the risks to the steeple-builders. It was satisfactory that not only was the work of building the spires finished, but that they were within sight of having it paid for also. The estimate of cost for the western spires was £15.000, but so great had been the increased cost of work and material that the price would be nearer £20,000. Owing, however, to the devotion of the contractor, Mr. Morgan, the actual price would be only a very little over £13,000.

THE cement industry has made, and is making, a steady advancement in Japan, and the exportation of the article is also increasing, especially since the introduction of the revolving kiln, and in recent years machines for the production of a superior quality have been brought into use. It is significant in this connection that the Imperial Government, not long ago, put into force new regulations, revising the old ones and considerably raising the standard for the examination of cement. There now exist over twenty-one cement factories throughout Japan, turning out 4,000,000 barrels of cement.

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THE
Architect and Contract Reporter.
FRIDAY, FEBRUARY 16, 1917.

EDITORIAL NOTICES.

The Editor will always be pleased to examine drawings or articles with a view to publication, but cannot be responsible for the safety of those sent, though every reasonable care will be taken. Contributors desiring payment should clearly state their wishes. No payment will be made until after publication, and a commission to prepare articles or drawings does not necessarily imply acceptance or approval.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

We have upon our staff a very eminent Barrister, who will be glad to answer in the columns of this paper any legal question that may be of interest to our readers. All letters must be addressed "Legal Adviser," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

TENDERS, ETC.

*** *As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than* 2 P.M. *on Thursdays.*

CONTRACTS OPEN.

BOURNEMOUTH.—Feb. 19.—For taking off existing and providing new roof and other works at Branksome Lodge, Avenue Road. Deposit £1 1*s*. Mr. F. P. Dolamore, borough engineer and surveyor, Municipal Offices, Bournemouth.

BRIDLINGTON.—Feb. 21.—For alterations to the vagrant wards at the workhouse, for the Guardians of Bridlington Union. Mr. S. Dyer, architect, Quay Road, Bridlington.

CROWLAS.—For the restoration of the Wesleyan chapel, Crowlas, Cornwall. Messrs. Cowell & Drewitt, architects, Penzance.

DERBY.—Feb. 20.—For extension to electric-power station, for the Corporation. Deposit £1 1*s*. Mr. J. Ward, M.I.C.E., borough surveyor, Babington Lane, Derby.

HARROGATE.—March 5.—For the supply and erection in the electricity works of a by-product steam boiler, overhead coal bunker, coal conveyor and structural steelwork, for the Electricity Committee. Deposit £2 2*s*. Mr. G. Wilkinson, M.I.E.E., M.I.M.E., borough electrical engineer, Corporation Electricity Department, 33 Swan Road, Harrogate.

IRELAND.—Feb. 28.—For erection of new bathrooms, lavatories, &c., at the Louth County Infirmary. Mr. V. J. O'Connell, M.I.M. and C.E., architect, Earl Street, Dundalk, and Harbour Office, Newry.

IRELAND.—March 5.—For the making and erecting in the city hall of a marble pedestal, for the Corporation of Dublin. The City Architect, Municipal Buildings, Cork Hill, Dublin.

LONDON.—Feb. 23.—For alterations to Nos. 5 and 6 Scrubbs Lane in connection with fireproofing two front rooms at No. 6 to be used as an electric sub-station for the Hammersmith Borough Council. Mr. H. Mair, Borough surveyor, Town Hall, Hammersmith.

MANCHESTER.—Feb. 21.—For the work required in the excavation, concrete, &c., in foundations for cooling-tower tanks at their Stuart Street electricity works, for the Electricity Committee. Mr. F. E. Hughes, secretary Electrical Department, Town Hall, Manchester, and Messrs. C. S. Allott & Son, civil engineers, 46 Brown Street, Manchester.

NORWICH.—March 1.—For general repairs, painting, &c., to No. 37 Victoria Street. Mr. A. E. Collins, M.I.C.E., city engineer, Guildhall, Norwich.

OLDHAM.—Feb. 21.—For erection of verandah and inside alterations at 28 Manchester Road, for the Tramways Committee. The Borough Surveyor's Office, Town Hall, Oldham.

SCOTLAND.—Feb. 28.—For the extension of the present filter-house at Cochno; the extension being approximately 36 feet by 26 feet, for the Clydebank and District Water Trust. Messrs. Warren & Stuart, engineers, 94 Hope Street, Glasgow, and Mr. J. Hepburn, clerk to the Trustees, Municipal Buildings, Clydebank.

SHEERNESS.—March 14. For the construction of pumping-station buildings, chimney shaft, approach road and other works at Sheerness East, for the Sheerness Urban District Council (Mr. F. W. S. Stanton, consulting engineer). Deposit £2 2*s*. The Water Engineer, Trinity Road, Sheerness.

TETBURY (GLOS.).—Feb. 28.—For the following works, for the Tetbury Urban District Council—viz.: (Contract No. 2) erection and completion of a new engine-house, pump-house and gas-producer house, together with engine bed, foundations, and other works incidental to the contract; (3) provision and erection and setting to work of a 32-b.h.p. suction gas engine and plant, together with a deep borehole pump and other works incidental to the contract. Deposit £3 3*s*. for each contract. Mr. H. J. Weaver, M.I.C.E.I., M.I.M.E., F.G.S., consulting engineer, North gate Mansions, Gloucester.

TENDERS.

IRELAND.

For reconstruction of two houses in Darling Street, Enniskillen. Mr. J. DONNELLY, architect, Enniskillen.

Donnelly & Son	£830 17 0
Howey	811 16 9
Pierce & Son	787 10 0
J. BLOOMFIELD, Brookeborough, co. Fermanagh (*accepted*)	724 10 0

The rest of Enniskillen.

SHEFFIELD.

For the erection of a temporary chapel at Abbey Lane Cemetery, for the City Council.

HUMPHREYS, LTD., London (*accepted*)	£778 0 0

THE Greasborough Urban District Council are considering a scheme for building about 200 houses.

THE Board of Education are pressing for the completion of preliminary arrangements for building the new technical school in Exeter, in order that a start may be made with the work after the war. The present plans provide for the accommodation of sixty students.

MR. CHARLES J. BLOMFIELD, F.R.I.B.A., informs us that his brother and himself having dissolved partnership at the end of last year, the firm of Sir Arthur Blomfield & Sons (of which he was senior partner) no longer exists. His business is now being carried on at 125 Park Road, N.W.

MR. WILLIAM ORPEN, A.R.A., has been commissioned, we understand, to proceed to the Front, where he will paint portraits of a number of generals, and these pictures will be placed in the National Portrait Gallery. It is also probable that he will paint a war picture to be presented to the National Gallery. Mr. Orpen has been in the Army Service Corps for over a year, and at present holds the temporary rank of captain.

THE Staffordshire Education Committee have resolved that the architect's sketch plans for the erection, on the existing site at Rushall, of a new department to accommodate 256 girls in five class-rooms (with a teachers' room) be adopted; that the architect be instructed to prepare the necessary plans and specifications and to submit them to the Board of Education for approval, and that the architect should obtain quantities, but not to invite tenders.

THE contract for the housing of the workers at Rosyth has been entrusted to Messrs. Holloway Brothers, London. It is understood that from 700 to 1,000 houses are to be erected during the present year, and this will necessitate the employment of a large number of men of all trades. At the meeting of the Dunfermline Dean of Guild Court on the 12th inst. the Court sanctioned the preliminary arrangements, including the digging of excavations, being proceeded with in connection with the third lot of one thousand dwelling-houses to be built at Rosyth by the Scottish National Housing Company (Rosyth).

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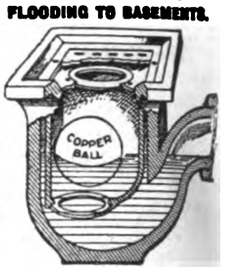
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BRITISH PATENT SPECIFICATION.

Selected by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the completed specification.

No. 102,773 (4,604, March 29, 1916).—J. I. Kirby, 5 Victoria Street, West Bromwich, Staffs.—This invention relates to the conversion of a domestic fire-grate, having front bars, into a grate without front bars, into what is known as "barless." In this invention the fire-well portion of the fitting, adapted to fit up to the bottom bars of the grate proper, has rigidly depending from its extreme front, which forms a rim, the one part of a front skirting composed of two or more parts adjustable vertically to each other to vary the depth of the skirting and fixable to each other after adjustment, the lower or lowest part of the skirting being always adjusted to stand upon the hearth of the fire-grate. Fig. 1 shows a perspective view of the barless front fitting only. Fig. 2 shows a plan of fig. 1. Fig. 3 is a transverse section illustrating how said fitting is applied to a fire-grate. Fig. 4 shows a transverse section of the two parts of the fitting separated. That part of the fitting extending

Fig. 1.

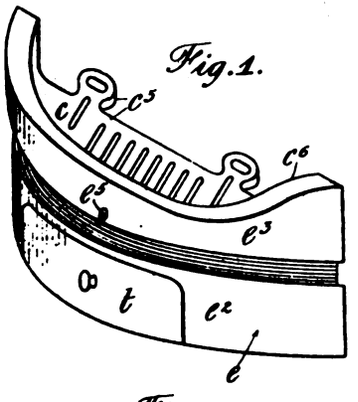


Fig. 2.

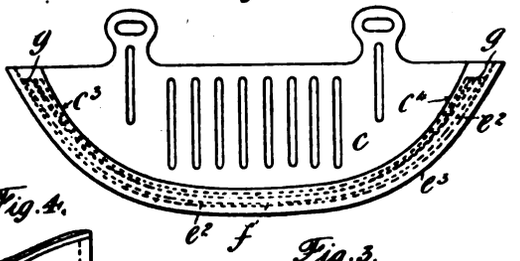


Fig. 4.

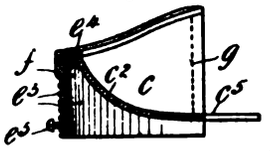
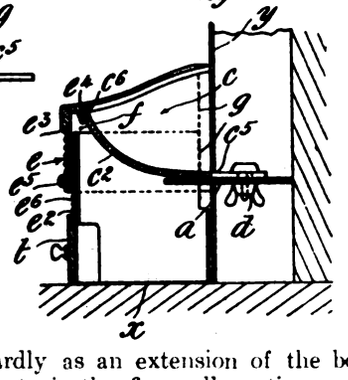


Fig. 3.



forwardly and upwardly as an extension of the bottom bars *a* of the fire-grate is the fire-well portion *c*, comprising front c^2, sides c^3 c^4, and bottom c^5, the latter at its inner side resting upon the bars *a* and being clamped thereto by holding-down bolts *d*. Fitted to this fire well, which is a separately cast piece, is a skirting *e* forming a vertical wall at the extreme front of the fire well to conform to the plan shape of said well and to extend from the rim c^6 to rest upon the tiled or other hearth *x*. This skirting entirely covers in the front of the well *c* and fits close up to the grate jambs *y*, one only of which is shown in fig. 3. The skirting is cast in two parts, a lower part e^2 and an upper part e^3, adjustably fitted to each other to vary the depth of the vertical wall they provide in front of the fire-well. The upper part e^3 is formed with an inwardly directed flange e^4, to the inner edge of which the rim c^6 of the fire-well fits up to and is fixed by suitable screw pins. The lower part e^2 fits within the upper part e^3 in a telescopic manner by entering a space *f* between the upper part e^3 and the front of the fire-well, a simple screw pin e^5 carried by the upper part e^3 providing the means for rigidly securing the lower part of the skirting to the upper part after adjustment by a clamping action of the lower part e^2 between said screw pin and the closed ends *g g* of the upper part, which closed ends are provided by vertical flanges of the fire-well portion *c*, the lower part at e^6 being formed with horizontal corrugations, one of which the end of the screw pin engages. A similar corrugated pattern on the upper skirting part e^3 is provided for effect. The manner in which the lower part fits the upper part in plan is shown by the dotted lines in fig. 2 and in side-section by figs. 3 and 4, and from fig. 1 it will be clearly seen that the skirting extends from jamb to jamb of the grate, and at its lower edge provides a good rest surface on to the tiled or other hearth *x*. *t* indicates a detachable front piece fitted to the lower part e^2 to close an ash-clearing opening in the skirting.—January 3, 1917.

PATENT SPECIFICATIONS.

Selected by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

No. 10,722.—Jan. 21, 1916.—C. G. Nobbs, Senior, and W. W. Nobbs, 87 Cleveland Street, N.W. Electric heating apparatus.

103,135 (240, Jan. 6, 1916).—Leonardo Filotico, Manduria, Lecce, Italy. Stone cutting machine.

103,136 (312, Jan. 7, 1916).—J. E. Clark, 38 Beatrice Street, Toronto. Pavements and the method of laying same.

100,851 (848, Jan. 19, 1916).—Theophilus Franks, 17 Conthurst Road, Blackheath, S.E. Screw-down water valve.

103,172 (859, Jan. 19, 1916).—Hugo Veronesi, 12 Via Angelo Masini, Bologna, Italy. Pumping installations for lifting water and the like.

103,208 (3,542, March 9, 1916).—Samuel Gough, "Lorraine," Knatchbull Road, Stonebridge Park, Willesden, N.W. Indicator for domestic use in connection with the calls of tradesmen.

103,213 (3,890, March 16, 1916).—T. E. Barralet, and the Parkinson Stove Co., Ltd., Stour Street, Birmingham. Thermostatic safety device for water heaters or geysers.

103,218 (4,253, March 24, 1916).—Cockburns, Ltd., David Cockburn and Donald MacNicoll, Cardonald, near Glasgow. Self-closing emergency stop valves.

Any of the above specifications may be obtained from J. D. Roots & Co.

THE Newport borough engineer has received information from the Whitehead Steel and Iron Co. that the firm are about to proceed with the erection of their new steelworks near Belle Vue Park, Newport.

WE regret to announce that Mr. J. W. Waterhouse, R.A., died on February 10 at his residence, Hall Road, St. John's Wood, after a long illness. John William Waterhouse, the son of a painter, was born in Rome in 1849, and at the age of five he was brought to England. On leaving school he was for a time employed by his father as assistant, pending the choice of a profession, a choice which, owing to the disappointing experience of the elder Waterhouse, excluded that of an artist. The boy's inclination proved, however, too strong for discouragement, and ultimately in 1871 he entered the Academy schools, though able to work there only in the evening. In 1874 he exhibited for the first time at the Royal Academy, and in 1885, on the strength of five or six large historical pictures, such as "The Favourites of the Emperor Honorius," he was elected Associate of the Royal Academy. Ten years later he was raised to membership.

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VARIETIES.

THE death has occurred of Mr. William Black, a well-known Inverness civil engineer and architect.

THE Burton-on-Trent Gas and Electricity Committee have decided upon a new scheme of electricity extensions at a cost of £25,000.

MR. JAMES BOLTON, of Oldham Road, Rochdale, Lancs, timber merchant, who died on November 27, left estate valued at £48,255.

MR. THOMAS JOSEPH MESSOM, of Holme Croft, Amyand Park, Twickenham, formerly of the Grosvenor Road Works, builder, who died on April 17, 1916, left property of the gross value of £90,114.

THE Burnley Town Council have decided to accept the offer of the Carnegie Trust of £15,000 towards the cost of providing a central free library. The Corporation are to forthwith lay a 1½*d.* rate, and get a site without encroaching on this grant.

THE Executive Committee of the Swansea Harbour have decided to recommend the granting of a lease of a site at the South Dock to Messrs. Smith's Dry Dock Company, of the River Tees, where will be constructed at a large outlay a new dry dock.

THE death took place on Monday last, after a brief illness, of Mr. James Edwin Benton (of the firm of Benton & Roberts, architects, Surrey Street, Sheffield), at his residence, Cannon Field, Hathersage. The deceased leaves a widow, son and daughter.

THE Carnarvon Town Council have been informed by their Town Clerk that inquiries had been received from a firm for a suitable site for the establishment of dyeworks, and he was in communication with them with reference to a place outside the borough.

A VALUABLE acquisition to the Lincoln Museum has been the presentation by Sir Cecil Smith, on behalf of the Victoria and Albert Museum, of ten watches and six watch movements of the eighteenth and nineteenth century, originally in the collection of Mr. Evan Roberts. Some of the watches were made in Lincolnshire.

AFTER a long period of failing health the death has occurred of Mr. Owen Morris, builder and contractor, Carnarvon. The late Mr. Morris, who was seventy-seven years of age, held for many years a prominent place among the builders of the district, and carried out several important contracts of a public nature. Mr. Morris was an ardent Conservative.

MR. AND MRS. H. CROSS, of Chester Road, Northwich, have been notified that their son, Private Frank Cross, has been killed in action. He was in the Royal Fusiliers. He was articled to Mr. John Brooke, surveyor to the Northwich Urban Council, and showed considerable promise as an architect and surveyor. His father is a prominent Freemason.

UNDER the will of Mr. John Elliot, Bidston, near Birkenhead, who died on December 31, it is understood that many pictures of the Liverpool School may find their way to the Walker Art Gallery, Liverpool, and other pictures to the Birkenhead Corporation Art Gallery. The testator was president of the Lear Home of Recovery, West Kirby, and he left to that institution £10,000 for endowment and not for building purposes, and a further £5,000 for building or general purposes.

THE Electric Supply Committee of the Sheffield Corporation have authorised the General Manager to engage temporarily six draughtsmen and such technical assistance as required for the preparation of plans and specifications for the building and equipment of the new Power House at Blackburn Meadows. The committee also authorised the suggested extension of the drawing-office accommodation at Commercial Street to be carried out.

MR. HARRY ELLIS WOOLDRIDGE, who was Slade Professor at Oxford from 1895 to 1903, died at his London residence after a long illness on the 13th inst. His works include the large reredos in the Church of St. Martin, Brighton, and frescoes in the parish church of St. John, Hampstead. Among his works on music are a new edition of Chappell's "Popular Music of the Olden Time," and "The Polyphonic Period."

IN connection with the Royal Academy Winter Exhibition of Graphic Art, the Council have arranged for a course of illustrated lectures on the various forms of engraving, to be delivered in the Galleries, without extra charge for admission, on Tuesdays and Thursdays, at 3.30 P.M. Next Tuesday Mr. Joseph Pennell will lecture on lithography; on the 22nd inst., Sir Frank Short will speak on etching and line engraving; and these lectures will be followed by Mr. Campbell Dodgson on old engravings, Mr. F. Morley Fletcher on colour printing, and Sir Frank Short on mezzotint.

THE West Sussex County Council have accepted the following tenders in connection with the installation at Graylingwell Asylum (now in use as a War Hospital) of an additional Diesel oil engine and dynamo:—Mirrlees, Bickerton & Day, 100-h.p. engine, dynamo and accessories, £2,291 5*s.*; Blackburn, Starling & Co., panel switchboard and cable connections, £99 10*s.*; Frank Sandell & Sons for providing cement base for the engine and dynamo, £312.

THE Stourbridge and District Building Trades Conciliation Board have had before them the demands of carpenters and joiners, bricklayers, and labourers, for an increase of 2*d.* per hour and a reduction in the number of hours. It has been decided that from April 1 an increase of 1*d.* per hour, in the nature of a war bonus, be given, for duration of war and for three months, and that the question of working hours be deferred until after the war. The district affected by this decision comprises Stourbridge, Brierley Hill, Quarry Bank, Belbroughton, Clent, and Kinver.

A MEETING of the Council of the Royal Institute of the Architects of Ireland was held last week in the Council Chamber, 31 South Frederick Street, Dublin, Mr. W. Kaye-Parry, M.A., B.E., President, in the chair. It was decided to convert the Institute's holdings in War Loan and Exchequer Bonds into new 5 per cent. War Loan. The following resolution was passed in connection with the competition for designs for the proposed University Buildings, Dublin: "The Council of the Royal Institute of the Architects of Ireland regret the great delay in announcing the results of the competition for the new University buildings of the National University of Ireland. They are of opinion that the delay of eight months in making the award of the assessor is unfair to the architects who have taken part in the competition."

CHESTERFIELD Town Council decided last week to proceed at once to prepare a housing scheme to meet the great shortage of working-class dwellings in the borough, and for that purpose to secure land for at least 200 houses. The Chairman of the Committee said the Council would be perfectly safe in buying land at a reasonable price and laying it out for building purposes. The idea was to commence building operations immediately after the war, and if, after building the proposed number of houses, the system was not found to be successful, the Council would have an opportunity of offering the land to builders and inviting them to build at a nominal profit. A member asked if it would not be possible to secure German prisoners to assist in laying out the land or making roads, but the Mayor thought the idea was to restrict prisoner labour to agricultural land.

TRADE NOTES.

BOYLE'S latest patent "Air-pump" ventilators, supplied by Messrs. Robert Boyle & Son, ventilating engineers, 64 Holborn Viaduct, London, E.C., have been employed at the Conservative and Unionist Club, Great Heath, Coventry.

IN these days of strict economy a surprisingly large amount of waste results from foodstuffs and other materials being stored in damp cellars. The difficulty is easily overcome by the use of a waterproofed cement rendering. We are informed that the cellars of a mansion at Roehampton were very damp and the above treatment was successfully applied; the powder "Pudlo" being adopted for the work.

THE buildings at a flying ground for H.M. Government, and the Ebenezer Chapel, Abersychan, are being ventilated by means of Shorland's exhaust roof ventilators supplied by Messrs. E. H. Shorland & Brother, Ltd., of Failsworth, Manchester. The same firm have supplied their patent "Manchester" stoves to the Crippled Children's Nursing Home, Marple, and the Baptist Church, Oakdale Village, Mon.

MESSRS. WAYGOOD-OTIS, LTD., founded a War-savings Association on August 2, 1916. It has already collected for War-savings Certificates nearly £1,000. With a view to encouraging the employees of the company to make an extra effort just now the company have promised to buy outright, this week, at least 1,000 War Certificates if applied for on or before February 16—and paying the last 1*s.* on each Certificate. This offer has met with a very encouraging response, and more than the thousand Certificates were applied for before that date.

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THE
Architect and Contract Reporter.
FRIDAY, FEBRUARY 23, 1917.

EDITORIAL NOTICES.

The Editor will always be pleased to examine drawings or articles with a view to publication, but cannot be responsible for the safety of those sent, though every reasonable care will be taken. Contributors desiring payment should clearly state their wishes. No payment will be made until after publication, and a commission to prepare articles or drawings does not necessarily imply acceptance or approval.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

We have upon our staff a very eminent Barrister, who will be glad to answer in the columns of this paper any legal question that may be of interest to our readers. All letters must be addressed "Legal Adviser," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

TENDERS, ETC.

*** *As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than* 2 P.M. *on Thursdays.*

CONTRACTS OPEN.

HARROGATE.—March 5.—For the supply and erection in the electricity works of a by-product steam boiler, overhead coal bunker, coal conveyor and structural steelwork, for the Electricity Committee. Deposit £2 2*s*. Mr. G. Wilkinson, M.I.E.E., M.I.M.E., borough electrical engineer, Corporation Electricity Department, 33 Swan Road, Harrogate.

IRELAND.—March 5.—For the making and erecting in the city hall of a marble pedestal, for the Corporation of Dublin. The City Architect, Municipal Buildings, Cork Hill, Dublin.

LONDON.—The Commissioners of H.M. Works, &c., invite tenders for the execution of ordinary works and repairs to the buildings in their charge in the London districts for a period of one year from April 1, 1917. Maps showing the six districts may be seen, and copies of the lists of buildings, conditions of contract, schedules, memoranda of the amounts paid under the current contracts, and all particulars may be obtained on application to the Contracts Branch, Storey's Gate, S.W., on payment of £1 1*s*. deposit. Tenders may be submitted for one or more contracts, and alternative tenders for the acceptance of two or more contracts may also be submitted. Tenders must be delivered on a date to be subsequently announced, addressed to The Secretary, H.M. Office of Works, &c., Storey's Gate, London, S.W. (See Advertisement.)

LONDON.—Feb. 23.—For alterations to Nos. 5 and 6 Scrubbs Lane in connection with fireproofing two front rooms at No. 6 to be used as an electric sub-station for the Hammersmith Borough Council. Mr. H. Mair, Borough surveyor, Town Hall, Hammersmith.

NEWSHAM.—Feb. 26.—For erection of warehouse at Co-operative Terrace, Newsham, Northumberland, for Messrs. the New Delaval Co-operative Society. Mr. J. Goulding, architect, Simpson Street, Blyth.

NORWICH.—March 1.—For general repairs, painting, &c., to No. 37 Victoria Street. Mr. A. E. Collins, M.I.C.E., city engineer, Guildhall, Norwich.

RICHMOND (YORKS.).—Feb. 27.—For the provision of an additional exit and lavatory accommodation at Town Hall. Mr. H. W. Marsden, borough surveyor, Finkle Street, Richmond, Yorks.

SCOTLAND.—Feb. 28.—For the extension of the present filter-house at Cochno; the extension being approximately 36 feet by 26 feet, for the Clydebank and District Water Trust. Messrs. Warren & Stuart, engineers, 94 Hope Street, Glasgow, and Mr. J. Hepburn, clerk to the Trustees, Municipal Buildings, Clydebank.

SHEERNESS.—March 14. For the construction of pumping-station buildings, chimney shaft, approach road and other works at Sheerness East, for the Sheerness Urban District Council (Mr. F. W. S. Stanton, consulting engineer). Deposit £2 2*s*. The Water Engineer, Trinity Road, Sheerness.

STOCKPORT.- For piggeries at Adswood Sidings, for the Stockport Industrial and Equitable Co-operative Society, Ltd. Mr. S. Taylor, general secretary.

TETBURY (GLOS.).—Feb. 28.—For the following works, for the Tetbury Urban District Council—viz.: (Contract No. 2) erection and completion of a new engine-house, pump-house and gas-producer house, together with engine bed, foundations, and other works incidental to the contract; (3) provision and erection and setting to work of a 32-b.h.p. suction gas engine and plant, together with a deep borehole pump and other works incidental to the contract. Deposit £3 3*s*. for each contract. Mr. H. J. Weaver, M.I.C.E.I., M.I.M.E., F.G.S., consulting engineer, North gate Mansions, Gloucester.

MR. REGINALD BARRATT, who died last Thursday after an operation, was a painter of considerable talent, architectural in character. The son of the late Dr. J. G. Barratt, he was educated at King's College and studied architecture under R. Norman Shaw, R.A., and painting under Bouguereau and Lefevre in Paris. In his earlier days he worked for the "Graphic" and "Daily Graphic," and he contributed to the Royal Academy as well as to the Royal Society of Painters in Water Colours, of which he was a member. He travelled much in the South and East, and his drawings consisted mostly of Oriental life and architecture. Mr. Barratt was a Fellow of the Royal Geographical Society and a member of the Athenæum Club.

THE war has practically stopped for the present the schemes for the building of new churches in the Liverpool diocese. This was a point noted at the recent annual meeting of the Diocesan Church Building Society; when the Bishop remarked that war time was not a time for erecting churches, but of repairing present fabrics. It is hoped, however, that at the conclusion of the war early steps will be taken with the building of the seven new churches in different parts of the diocese which are on the list, and, according to what the Bishop said, are sorely needed. One is intended to replace a church in the Wigan district, the fabric of which is cracking through being undermined.

AN agreement has been come to between the Leeds Federation of Building Trade Employers and the five societies representing the joiners, masons, bricklayers, and builders' labourers in the city, on the demand for an increase of wages in view of the high cost of living. An application had been made to the employers for an advance of 2*d*. per hour, the present rate being 10¾*d*. The employers offered an advance of a penny per hour, and this has been accepted, the new rate to come into operation forthwith. There have been several advances of wages since the outbreak of war, and the employers and employees specially reserve the right to make further application for a revision should the circumstances justify it.

AT a meeting of the Hull Corporation Property Committee last week the Town Clerk (Mr. H. A. Learoyd) explained the trust deed relating to the Art Gallery which the Right Hon. T. R. Ferens, M.P., is presenting to the city. Under this deed £35,000 in Reckitt & Sons' shares constitutes the trust fund, and the Corporation undertake to erect and complete an Art Gallery, partly upon the site now occupied by St. John's Church, and partly upon other land belonging to the Corporation, within five years after the declaration of peace. Plans are to be advertised for and submitted to a committee appointed by the Corporation and the grantor. There is a condition that the Corporation shall, at their own expense, and before the completion of the building, pull down and remove the public lavatories in the City Square, "and will not re-erect the same or any other, except underground" and at a certain distance from the new gallery. It was resolved to approve the deed.

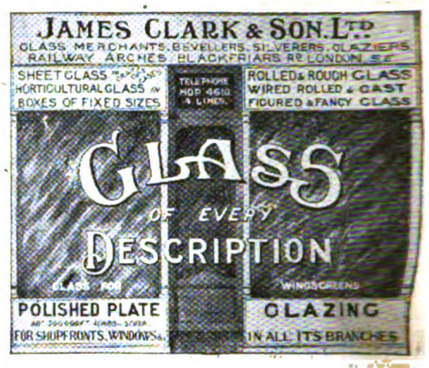
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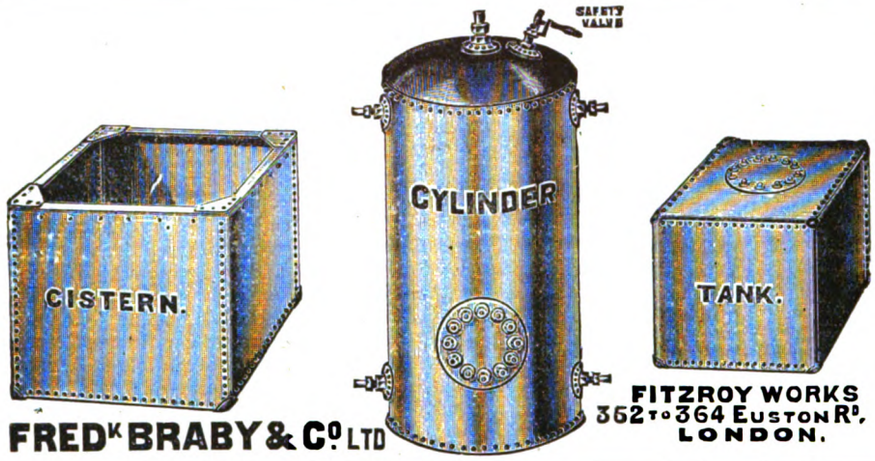
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PILE-DRIVING AND THE SUPPORTING POWER OF PILES.*

THE smallest piles are driven by a "beetle," which is a heavy long-handled wooden mallet weighing about half a hundredweight. For driving larger piles up to 10 in. square an apparatus called a ringing engine is used. It consists of a light framework with a pulley at the top and a rope over it, connected at one end to a ram weighing from 3 to 5 cwt., and at the other end attached to four or more short ropes or tails for pulling by hand power directly applied. One man is allowed to each 40 lb. weight of ram, and two can hold on to one tail. By this means a rapid succession of blows is given with a light fall. The ram is in some districts called a tup, or trip, and in London is very often called a monkey, but the monkey is properly only the slip-hook that runs up and down to lift and drop the ram in the larger apparatus.

Ordinary piles are driven by what is called a "pile engine." It is virtually a large hammer, the weight being arranged to fall freely and strike a succession of blows upon the head of the pile. It consists of a tall framework, with vertical guides on the face to keep the hammer or ram in a direct line with the head of the pile. The base of the pile engine is placed just above the finished level of the pile head, so that in driving long piles a high framework is required. It is, however, sometimes impossible to get the framework high enough for this, and it is then set 6 or 8 ft. above the finished level, and a punch, dolly, or follower, of hard wood, hooped at both ends, is used on the head of the pile when it gets as low as the base of the frame, but the blow is not so effective and the method should be avoided when possible; it is said to reduce the effect of the blow one-third, more or less, according to the rigidity of the material.

The length of a pile is generally determined by the local conditions of site and soil, the sectional area chiefly upon the load it has to sustain, usually the ratio

$$\frac{L}{A} = \frac{1}{4} \text{ to } \frac{1}{8}$$

but no general rule can be laid down, as it depends to some extent upon the unsupported length above ground.

In ordinary cases the ram is raised by a crab-winch, worked by three or four men, and is connected to the rope or chain for lifting by an intervening slip-hook or "monkey," so that it can be suddenly disconnected and allowed to fall freely when it has reached the required height. In the usual way the ram can only have a small fall at the commencement of driving because of the height of the pile, but the resistance is also small at starting, and as the pile goes down the fall can be increased. If it is then desired to retain a uniform fall, the rope which releases the trigger of the monkey is made fast to the head of the pile, and is by this means pulled automatically at a constant height above the pile whatever its position may be. Where there is much piling to be done, the hoisting of the ram is usually effected by a small steam engine attached to a vertical boiler and placed close alongside. By throwing a clutch out of gear the chain is rapidly lowered to enable the ram to be again connected, and much time is saved. Piles penetrate quicker and more easily when driven with a minimum interval between each blow, as the soil has then less time to settle and adhere to the pile.

Pitching and Driving.—In pitching a pile care must be taken that it is started in the right place, as it cannot be shifted, but if the point is not truly in line with the axis of the pile, or gets pushed to one side by meeting an obstruction before it has entered very far, the lower end of the pile will be drawn over to the side to which the point leans. In spite of the greatest care they will sometimes be found slightly out of position, and they have then to be drawn back into place by chains, twisted like a surgeon's tourniquet, while being bolted to the other timbers. If it be necessary for them to be scarfed, the upper portion can be adjusted by cutting the scarf a little out of line to suit. All piles are not required to be vertical; in building jetties the outside row of piles is often doubled, the outer pile being a raking one, at 15 to 30 degrees from the vertical, for increasing the stability, acting like a buttress. At the corners of jetties the outer piles are usually raking both ways, say about 15 degrees from the vertical. When necessity arises piles may be drawn from the bed of a tidal river by lashing empty barges to them and letting them lift by the tide. Against a river wall or round the foundations of a bridge piles should be sawn off by a diver as low as he can get at them in preference to drawing them, to avoid any risk of scour and undermining of the foundations taking place. On land a pile may be drawn by lashing a short piece to the top and then prizing it up by another baulk used as a lever, or by a pair of powerful jacks.

Weight of Ram.—One of the most interesting questions in connection with pile-driving is the proportion between the weight of ram and the fall to produce a given result. The ram usually weighs from 5 to 30 cwt., and is allowed to fall, say, from 6 to 20 ft. Upon a superficial consideration it would seem that a ram of 5 cwt. falling 20 ft. would produce the same result as a ram of 20 cwt. falling 5 ft., as they would both have 5-ft. tons energy, but the proportion of the total energy which is usefully expended in sinking the pile depends *inter alia* upon the ratio of the weight of ram to the weight of the pile. Some of the total energy is always wasted.

A light ram with a long fall will not have the same effect as a heavy ram with a short fall. In practice it is found that with too great a fall the effect of the blow is to bruise and "broom" the head of the pile, or to shiver the timber instead of to force it downwards. A heavy ram, producing the same effect in distance driven as a light one with greater fall, does less injury to the pile. Dobson says, "In working with a fall from 12 to 20 ft. it is common for every tenth pile to be more or less shaken." Of course he meant to say "one pile in ten." It is as if the top of the pile were driven down while the bottom remained stationary, owing to the inertia of the mass of the pile. He gives a table for weight of ram desirable for various sizes of piles, this is laid down to a curve, and is given very nearly by the formula—Weight of ram in cwt. = 3 (diam. pile inches − 5).

Hurst's "Tredgold," page 292, says, "Piles from 10 to 14 in. diameter require to be driven with a ram of from 1,000 to 1,700 lb. weight. Sheeting piles require a ram from 500 to 900 lb. weight."

The weights of ram most favoured by railroad engineers, representing thirty-seven roads, and by fourteen other engineers and contractors, according to the "Engineering Record," May 1, 1909, are 2,500 lb. and 3,000 lb. as shown by data in the report of the Committee on Wooden Bridges and Trestles of the American Railway Engineering and Maintenance of Way Association, but this result ignores the size or weight of pile. Out of fifty-seven replies to the question as to type of ram, forty-three preferred drop hammers, nine preferred steam hammers, and the others used both.

For the first few blows the pile goes down a considerable distance, which gradually becomes less at each blow, until the resistance is so great that it will not go any farther, or, as it is technically called, "refuses." Were the material of the pile perfectly rigid and inelastic, the impact, however slight, would produce an infinite pressure, but the material is very elastic, and so the fibres of the pile are compressed without the point going any farther, and the amount of this compression and the elasticity are strikingly shown in the rebound of the ram when the pile refuses. Generally the driving is stopped when the "set," or distance driven by the last blow, does not exceed ¼ in., or the sum of the last three blows 1 in.

*Abstract of a Paper by Professor Henry Adams, M.Inst. C.E., &c. (Past-President), read before the Concrete Institute.

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The Supporting Power of Piles.—The sustaining power of a pile depends chiefly upon three circumstances—

(1) The resistance at the point or shoe to further penetration.

(2) The friction of the earth on the sides of the pile, and

(3) The strength, as a column, of the pile above the ground or above the firm sub-soil.

Although it would seem that these are simple elements each of which could be fairly estimated, the complexity of the case is shown by the numerous formulæ which give results ranging up to about 450 per cent.

Rankine states that the actual load applied varies from 200 lb. in soft ground to 1,000 lb. on reaching firm ground, per square inch sectional area of pile.

Rankine's "Useful Rules and Tables" gives the ordinary working loads on the heads of piles in foundations as follows:—

On piles driven till they reach firm ground—0.45 ton per square inch.

On piles standing in soft ground by friction—0.09 ton per square inch.

Ordinary values of greatest load which piles will bear without sinking further—0.9 to 1.35 tons per square inch.

D. K. Clark (Law's "Civil Engineering," p. 49) says that a pile 12 in. square, 20 ft. in ground, will bear nine tons in ooze or muddy sand, 12 tons moderately compact clay, 25 tons hard clay, 80 tons if it reaches hard gravel; but this assumes the pile to be so supported throughout its length as not to be free to bend.

In Newman's "Earthwork Slips and Subsidences" the frictional resistance of timber piles is stated to be less through wet soils than dry, in the following proportions:—

In sandy gravel 5 to 10 per cent. less. In sand about 12 per cent. less. In sandy clay or gravelly clay about 40 per cent. less.

Experiments with cast-iron piles by McAlpine gave about ½ ton per square foot of surface as the supporting power from friction when sunk 20 to 30 ft. in rocky gravel. He considers it would amount to 3 tons per square foot in fine earth, but this seems to be an extravagant assumption. In experiments made previous to the sinking of concrete piles for the works of the Vienna-Danube Sand Dredging Company in 1909 it was found that the frictional resistance was about 14.19 lb. per square inch of surface = 2054.36 lb. per square foot, or just over 18 cwt.

French engineers (vide Berg's "Safe Building") allow a pile to carry 50,000 lb. provided it does not sink perceptibly under a ram falling 4 ft. and weighing 1,350 lb., or does not sink ½ in. under thirty blows.

A common rule for safe dead load on each pile is 5 tons per square foot of cross-section in soft ground, or 1 ton per in. side of square piles in firm ground.

The New York Building Regulations permit a load of 20 tons per pile, but the size is not specified.

Reinforced Concrete Piles.—The advantages of reinforced concrete piles are so manifest that they need no express recommendation here. The chief physical differences from timber piles, as regards driving and their supporting power, are due to their extra weight and their friable nature. They should be made with slow-setting cement six weeks before driving, but if made with quick-setting cement they must be left eight weeks, because in the latter case the outside hardens first and leaves the interior soft. They should be driven by steam or drop hammer with a 3-ton ram, having a fall of 3 ft., with a steel helmet filled with sawdust, and preferably without a dolly.

In America the use of a water jet is found to greatly facilitate the sinking of concrete piles.

Hollow cylindrical reinforced concrete piles have been used at Southampton, Newcastle-on-Tyne, and Liverpool. They are lighter and cheaper than solid piles and more effective. Those at Brocklebank Dock, Liverpool, were 20 in. diameter. Reinforced concrete piles of circular section are easier to drive than square piles, and as they have no sharp angles are less liable to be damaged by coming into contact with boulders, &c.

As reinforced concrete piles are made horizontally, care must be taken in lifting them; the points of attachment for lifting should not be less than half the length apart, and if lifted with one end on the ground the attachment should be one-third the length from the other end.

The reinforcement rods (about 2½ per cent.) should preferably be hooked at the top and electrically welded together at the bottom. They should be bound helically by, say, ¼-in. wire, 4-in. pitch, carefully secured at the top.

The Nasmyth steam pile-driver quoted by McAlpine ("Min. Proc. Inst. C.E.," xxvii. p. 277), with a ram of 3 tons and a stroke or fall of 3 ft., gave from sixty to eighty blows per minute. Although the force of the blow was much less the effect was much greater than with ordinary pile-drivers, and the piles (timber) were capable of being driven to a greater depth. This was no doubt due to the earth not having time to settle round and adhere to the piles.

It is a debatable question whether reinforced concrete piles are more easily and economically driven to the required depth by a drop hammer or by a steam hammer. The probability is that upon a trial with equal weights of hammer the advantage of the steam pile-driver in the case of wooden piles would be maintained with reinforced concrete piles.

The building laws of most of the cities in the United States allow on concrete piles a safe load from 350 to 500 lb. per square in. on the concrete, plus from 6,000 to 7,500 lb. per square in. on the vertical reinforcement. This is irrespective of the nature of the soil or depth driven, but they are supposed to be proportioned according to certain formulæ.

It is a commonly received notion that a reinforced concrete pile will safely carry double the load that a timber pile of similar dimensions would do, but the writer has not found any data from which such a conclusion could be absolutely derived. He has not found a single case of a test load which has caused a concrete pile to sink farther. There are many accounts of loads put on piles which did not cause any sinking, but these have no practical value for checking the formulæ.

Mr. Charles Gow, in a paper read before the Boston Society of Civil Engineers, considered 30 tons the safe approximate load on concrete piles, but the size of the piles was not stated.

In the Dittman Factory, Cincinnati, Chicago, one concrete pile was considered equivalent to two or more wooden piles.

The "Raymond" concrete piles are not reinforced, but are made by first driving with a solid steel core a thin conical steel shell, which excludes sand and water, and is filled with concrete after the core is withdrawn. For the Friede Globe Tower at Coney Island, 700 ft. high, where the soil consisted entirely of fine set sand, the concrete piles were about 8 in. diameter at the point and 20 in. at the top, driven to a depth of about 30 ft. They were calculated to have a bearing capacity of 300 tons each, but are loaded with only 57 tons each.

Screw Piles.—Screw piles of reinforced concrete have been patented by Mr. Vernon Inkpen, of Portsmouth, and they would probably be found very useful in a peaty or wet sand foundation.

Rankine's "Useful Rules and Tables" say, "The load supported by a screw pile in practice ranges from three to seven times the weight of earth which lies directly above the screw blade." This seems to be a very peculiar way to measure the supporting power, and appears to be based upon the resistance to the "spewing-up" effect of the downward pressure by the screw blade, and not on the direct resistance of the soil below the blade to compression. The fact is that the coils vary so

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much between the extremes of plastic clay and firm gravel that whatever rules may be laid down, personal judgment must come in as the most important factor, whatever kind of pile or method of driving may be employed.

CABOT'S QUILT.

WHEN the designs for the National Institute for the Blind, recently erected in Great Portland Street, W., were being prepared by Mr. Claude W. Ferrier, F.R.I.B.A., one of the difficulties to be overcome was that of making the organ hall on the first floor sound-proof. This problem of sound-proofing is one of those which have been rather shirked in this country; and as a consequence there are many important buildings which are failures and but few successes in this respect. About three years ago there appeared in our pages an account of the entirely successful measures taken to sound-proof the various practice rooms of the new music school built at Hammersmith for the St. Paul's Girls' School. After many experiments each of these rooms was made an insulated box principally by the use of Cabot's three-ply Quilt. This same material was triumphantly employed by Mr. Ferrier in the fine building to which our plates are devoted this week. A detailed account of the method is given on an earlier page in the architect's description of the Institute. In the United States this problem has been much more courageously tackled by the profession, and it is from that country Cabot's Quilt comes via Messrs. Arthur L. Gibson & Co., of Twickenham, the sole importers. But it is not merely as a sound-deadener that the material is useful: it possesses high fire-resistance value as demonstrated time and again; as a heat insulator it has proved the most efficient of any tested by the United States Government Bureau of Standards, and lastly it is known at both the South Pole and North Greenland. Upon the return of the survivors of the Scott Expedition the following letter was received from Commander Evans, who also verbally praised the Quilt most enthusiastically: "I have much pleasure in informing you that the patent Quilting supplied by your firm for insulating the Antarctic huts at Cape Evans, McMurdo Sound, and Cape Adare, Victoria Land, Antarctica, proved highly satisfactory. It was thoroughly efficient, and I am convinced that it is the best material for the purpose."

VARIETIES.

THE result of the voting amongst the members of the Amalgamated Society of Carpenters and Joiners shows a majority of 5 to 1 against the introduction of premium bonus, or the piecework system of payment in shipbuilding and house-building industries.

THE positions to which Mr. R. Leonard Powell, of Chislehurst, and Mr. Charles T. Ruthen, C.E., architects, have been appointed as inspectors to investigate the use made by Government Departments of the premises occupied by them are honorary.

COMMENDATORE GIACOMO BONI, Director of the excavations in the Roman Forum and on the Palatine, has received a Gold Medal awarded by the Milanese Chamber of Commerce for white garments and waterproof boots designed by him for soldiers engaged in the operations in the Alpine regions.—"Morning Post."

THE commission of investigation into national health appointed by the Faculty of Insurance, in their report issued recently, state with regard to health services, that it is impossible to expect fully satisfactory results from any of them unless and until housing conditions, both urban and rural, are improved.

MR. CHARLES H. MACKIE has been elected a member of the Royal Scottish Academy in the room of the late Mr. Charles Hardie. Mr. Mackie, who is well known as a landscape and portrait painter, and has exhibited at the Royal Academy and many Continental galleries, has been an Associate of the Scottish Academy since 1902.

MR. SAMUEL STEVENS HELLYER, of New Holme, Bromley, Kent, who died in Switzerland on December 8 last, left a fortune of the value of £170.185. Mr. Hellyer was, of course, a great pioneer of sanitary reform, and was for many years head of Messrs. Dent & Hellyer. Particulars of his career were given in our issue of December 29.

THE Special Committee of the Dublin Municipal Council in charge of the reconstruction of the destroyed areas of Dublin wish it to be generally known that, provided the requirements of the Corporation and of the Reconstruction Act are complied with, there is now no need for further delay in proceeding with the rebuilding of destroyed premises.

MR. CHARLES TRUBSHAW, for many years chief architect to the Midland Railway Company, died on the 14th inst. at Derby, aged seventy-six. Mr. Trubshaw designed the Midland Hotel at Manchester, the station and hotel at Bradford, and many other well-known buildings. He went to the Midland from the London and North-Western Railway Company in 1875, and retired in June 1905. He became an Associate of the R.I.B.A. in 1865 and a Fellow in 1882, retiring in 1908.

THE Secretary of the War Office announces that Sir Bampfylde Fuller has undertaken charge of the department of the War Office which is dealing with the supply of timber for use of the Army. He will be assisted by an Advisory Committee consisting of four or five timber merchants chosen by the Timber Federation, and by one or two gentlemen representing firms of repute which do not belong to the Federation. The interests of various Government Departments concerned in the use and conservation of timber will be watched by a Consultative Committee.

HAWICK Archæological Society purpose erecting a memorial to the late Sir James A. H. Murray, of Oxford Dictionary fame, and who was one of the founders of the society. It is proposed to re-erect the Mercat Cross in Sir James's native village of Denholm, to be placed in the village green opposite his birthplace, and also to place a memorial tablet on the wall of the house in which he was born. The scheme will not be definitely proceeded with until after the war.

THE Lord Provost's Committee of Edinburgh Town Council had before them last week a communication from the Admiralty on the question of making housing provision for Rosyth workers. A scheme for the reconstruction into dwelling-houses of a number of business offices in the New Town was drawn up by the burgh engineer and submitted to the Admiralty, who have now written thanking the Corporation for their offer, but expressing the view that the loss which would result in connection with the letting and reinstatement of the property would be out of proportion to the value of the accommodation obtained.

THE Water Colour Society of Ireland, in view of their financial loss during the past two years in consequence of the war, were obliged to consider carefully the question of suspending their exhibitions for the present, or until after the war; but, realising how seriously this would affect the exhibiting members, the Committee have decided to hold an exhibition again this year, in the hope that it may be run without a loss. Accordingly, the exhibition will be opened at Mill's Hall, Merrion Row, Dublin, on the 6th March, and continue for three weeks.

IN the House of Commons on Monday Dr. Addison stated that the Order in Council of July last required the issue of a licence for all building work of the value of £500 or over, and for any work involving the use of constructional steel. For the future he was obliged to consider a further limitation of licences, and it would be of great assistance if applications even for small amounts were limited to those required either for urgent repairs or for work of national importance.

THE new church of St. Luke, Darlington, was consecrated last week by the Bishop of Durham. Situate in Corporation Road, and known as the "Railway Pioneers' Memorial Church," it is of a simple type of Early English, substantially built in stone and covered with thick green Westmorland slates. The portions now completed comprise the nave and aisles, with temporary chancel, vestries and porches. The cost to date is just over £6,000, exclusive of gifts and of the site, which was provided years ago by friends. The architects were Messrs. Clark & Moscrop.

MR. H. G. BADENOCH, F.R.I.B.A., of Newcastle-on-Tyne, died on the 15th inst., after a short illness, at his residence, Balgownie, Fenham. The deceased gentleman was a native of Aberdeen, and had been in practice in Newcastle for twenty-five years, carrying on business in Emerson Chambers. He specialised in church architecture, and was the architect for the Presbyterian churches in College Road, Arthur's Hill, Benwell, Byker, and Brighton Avenue, Gateshead. He was also the architect for the Cordwainers' Buildings, Newcastle. He was a member of the Council of the Northern Architectural Association. Mr. Badenoch's three sons are serving with the Forces. The eldest, an architect who served his articles with his father, joined up in Toronto with the 2nd Canadian Contingent; the second son is in the 1st Canadian Contingent R.F.A.; and the third son, a doctor, has been in France as captain in the R.A.M.C.

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THE
Architect and Contract Reporter.
FRIDAY, MARCH 2, 1917.

EDITORIAL NOTICES.

The Editor will always be pleased to examine drawings or articles with a view to publication, but cannot be responsible for the safety of those sent, though every reasonable care will be taken. Contributors desiring payment should clearly state their wishes. No payment will be made until after publication, and a commission to prepare articles or drawings does not necessarily imply acceptance or approval.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

COMPETITION OPEN.

OLDHAM.—April 24.—The Health Committee are prepared to receive competitive designs for a proposed Nurses' Home at Westhulme from architects practising within the borough. A plan of the site may be seen and instructions and suggestions for the guidance of architects may be obtained on application at the Borough Surveyor's Office. Premiums of £15, £10, and £5 respectively will be awarded to the authors of the designs which are selected as first, second and third in order of merit. Competitive drawings with sealed letter containing name and address of the author to be delivered under cover at the Borough Surveyor's Office not later than 24th April next, endorsed "Design for Nurses' Home."

CONTRACTS OPEN.

BRIGHOUSE.—March 3.—For erection of extensive additions at the Woodhouse Works, for Messrs. J. Blakeborough & Sons, Woodhouse Works.

BULCAMP (SUFFOLK).—March 7.—For supply of 5,500 tons of granite, &c., for the Blything R.D.C. Mr. H. A. Mullens, clerk, Council Offices, Bulcamp, Halesworth.

CAISTOR.—March 9.—For erection of a motor shed at the workhouse, Union Road, for the Guardians. Mr. A. A. Padley, clerk, Union Offices, Caistor.

FULWOOD.—March 10.—For supply and delivery of the following:—Granite macadam, earthenware pipes, iron pipes, iron gulley tops, manhole covers, lead pipe, scavengers' brushes, curbs, channels, &c., for the Urban District Council. Mr. Arnold Brierley, Council Office, Fulwood.

HAWORTH (YORKS.).—March 3.—For erection of twenty-six w.c.'s and ashpits, including masons', joiners' and plumbers' work, for the Haworth Urban District Council. Mr. R. Harrison, sanitary inspector, Council Offices, Mill Hey, Haworth.

IRELAND.—March 5.—For the making and erecting in the city hall of a marble pedestal, for the Corporation of Dublin. The City Architect, Municipal Buildings, Cork Hill, Dublin.

IRELAND.—March 7.—For supplying the ironmongery, plumbing materials, tinware, timber, and building materials, &c., paints, oils and colours, glass and glazing, baskets and cradles, twine and rope, lime and sand, and best Portland cement for the North Dublin Union. Mr. James P. Conry, North Dublin Union, Brunswick Street, Dublin.

LONDON.—The Commissioners of H.M. Works, &c., invite tenders for the execution of ordinary works and repairs to the buildings in their charge in the London districts for a period of one year from April 1, 1917. Maps showing the six districts may be seen, and copies of the lists of buildings, conditions of contract, schedules, memoranda of the amounts paid under the current contracts, and all particulars may be obtained on application to the Contracts Branch, Storey's Gate, S.W., on payment of £1 1s. deposit. Tenders may be submitted for one or more contracts, and alternative tenders for the acceptance of two or more contracts may also be submitted. Tenders must be delivered on a date to be subsequently announced, addressed to The Secretary, H.M. Office of Works, &c., Storey's Gate, London, S.W. (See Advertisement.)

MARGAM (PORT TALBOT).—March 6.—The Margam Urban District Council invite tenders for supply of the following:—Gas Department—(1) 4,000 tons of large through and nut gas coal for delivery from April 1, 1917, to March 31, 1918. Surveyor's and other departments for period ending September 30—(2) limestone metalling for (*a*) Margam and Brombil, (*b*) hamlet of Kenfig and (*c*) hamlet of Trissent; (3) haulage of metalling; (4) general haulage; (5) scavenging at (*a*) Bryn, (*b*) Oakwood and (*c*) Ynisygwas; (6) hay, corn, bran and bedding; (7) coal for public baths, offices, &c.; (8) disinfectants; (9) illuminating oils; (10) black and galvanised wrought-iron tubing and water fittings; (11) wrought-iron castings, lamp pillars, gully gratings, &c.; (12) stoneware goods, paving, kerbing, cement, &c. Mr. D. E. Jones, clerk.

SHEERNESS.—March 14. For the construction of pumping-station buildings, chimney shaft, approach road and other works at Sheerness East, for the Sheerness Urban District Council (Mr. F. W. S. Stanton, consulting engineer). Deposit £2 2*s*. The Water Engineer, Trinity Road, Sheerness.

SHEPTON MALLET (SOM.).—March 10.—For the supply and delivery of limestone, quartzite, granite, basalt, tarred macadam, asphalt, gravel and sand on the different main and district roads, for the Urban District Council. Mr. A. E. Nalder, clerk, Council Offices, Shepton Mallet.

TENDERS.

NEWTON ABBOT.

For alterations and additions to their depôt in Salisbury Road, for the Newton Abbot Urban District Council. Mr. C. D. WHITE, surveyor.

H. MILLS & SON, Newton Abbot (*accepted*) £385 0 0

PRESTON.

For erection of gangways at tramways power station, for the Corporation.

T. B. GARNETT & SONS (*accepted*) . . £133 0 0

THE Trade Papers Publishing Co., Ltd., 365 Birkbeck Bank Chambers, W.C., have published a 20-page booklet (price 4*d*.) entitled "The Fundamental Principles of Plain Painting." It consists of notes from lectures delivered to students of painters' and decorators' work by Mr. James Lawrance, acting instructor of Painters' and Decorators' Work at the L.C.C. School of Building. A wide area of ground is covered in the fewest possible words. It is not claimed that any new facts are given, but rather a new arrangement of old ones. The points are given with a marked clearness and simplicity of language.

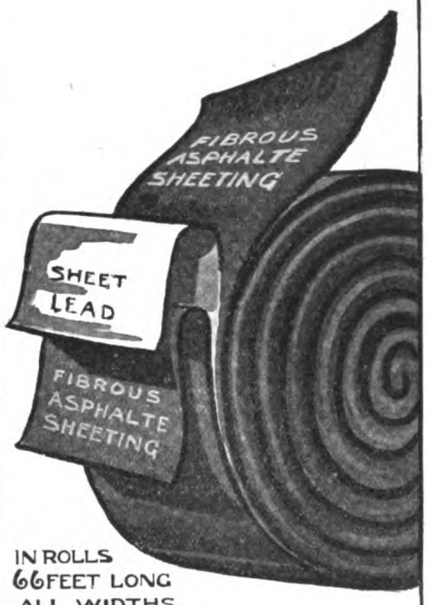
IF present plans are carried out the new Dominion Parliament buildings will be a national memorial of Canadian heroism and Canadian sacrifice. It is proposed that in the new library space shall be provided for the accommodation of the flags and banners of the Canadian overseas regiment. The flags will probably hang from the base of the dome of the building. The new senate building will have no galleries at its sides; the walls are to be utilised for portraits and paintings typical of the cause for which the Allies are at present fighting. Painters from the different countries engaged with Great Britain in the present war will be invited to come to Canada to do this work.

IN a recent building dispute Sheriff Macleod at Linlithgow said, in giving his decision: "This is an illustration of the not uncommon case of two fast friends who enter into a very loose contract about the building of a house, and who later are happy to spend heaps of money in fighting each other over what the contract was. The result is unfortunate. Either the pursuer will have given far too much for the money he gets or the defender is the owner of a much more expensive house than was in his original thought."

MR. GILBERT SCOTT, F.R.I.B.A., appealed at the Law Society Appeal Tribunal for A. G. Crimp, his office manager, thirty-seven, A1. Counsel stated that Mr. Scott was patriotically giving his valuable time and services in designing the plans and elevations for the Star and Garter Home for Incurable Soldiers at Richmond. While he was performing this highly important national work Mr. Crimp, who was a qualified architect, was the only man on whom Mr. Scott could rely to manage his office affairs. Mr. Scott said that during the last three weeks the Committee of the Home had asked for drastic alterations in the plans, involving an entirely new set of plans. They had agreed also to increase the cost from £120,000 or £130,000, as originally intended, to £200,000. Three months' exemption was granted.

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MARKET FOR WALL-PAPER IN ARGENTINA.

THE Canadian Acting Trade Commissioner at Buenos Ayres writes, according to the "Weekly Bulletin" of the Canadian Department of Trade and Commerce (Ottawa) of October 9 that, owing to the war, many Argentine importers have been forced to depart from their ordinary channels of business, and they are willing, therefore, to take a certain amount of risk in trying new sources of supply for the articles which they most need. Among these may be mentioned wall-paper, the consumption of which in Argentina has been steadily increasing for many years past, and is likely to increase in the near future.

Styles in Demand.—There is a demand in Argentina for the very cheapest and also for the most expensive kinds of wall-paper. The average Argentine is possessed of good taste, and the wealthier classes do not hesitate to pay high prices for elaborate designs. Embossed, silvered, and gilded papers and mouldings, which, in addition to the heavy first cost, entail the payment of a more than proportionately heavy duty, are used for dining-rooms. The cheaper kinds of wall-paper, such as have been coming from Germany, have nothing characteristic in their design, being more or less similar to those used elsewhere.

A style of medium-priced paper recently much in evidence, but now going out of fashion, is one which imitates tapestry. Another style which is being displayed largely just now is a single-coloured paper, the design of which seems to aim at imitating the graining of Morocco leather. Oatmeal papers have not had much sale so far, but it is said that certain quantities of them are being purchased. Bedroom papers are usually on white backgrounds, lined and flowered. In general it may be said that styles change about every two years.

Terms and Prices.—Nearly all business in wall-paper is done on a basis of the delivery of documents against the acceptance of a 90 or 120 days' sight draft. Some manufacturers offer a discount for cash against documents and a further discount where a letter of credit is sent; but importers rarely if ever take advantage of these conditions. Prices are quoted by all manufacturers in francs, shillings, or dollars gold per roll, f.o.b. port of shipment, insurance to be paid for account of purchaser. Packing is for account of purchaser also; this item, however, is frequently not charged up, especially when an order is large.

Packing.—The finer qualities of wall-paper imported into Argentina are packed in wooden cases, but medium and cheaper qualities are packed in jute. As a rule the purchaser prefers the second-mentioned method of packing, because the Customs duties are levied on the gross weight of the package.

Lengths and Widths.—In the old-fashioned houses in Buenos Ayres the rooms are very lofty, four metres being the usual height. To meet this condition rolls of wall-paper have always been bought in eight-metre lengths. The question of widths is, of course, not so important. In the past, rolls had to measure eight metres by half-a-metre because importers insisted upon these measurements. Conditions have changed, however, during the last two years. A large number of modern buildings containing flats and offices have been erected, and the height of the walls in these buildings varies considerably, but is always less than four metres. For modern buildings, therefore, an eight-yard, or still better a sixteen-yard, length is acceptable.

Argentine importers at the present time cannot afford to be so exigeant as they were previously, and if prices and designs suit them, they will not insist so much on the matter of lengths as they would formerly have done.

Sources of Supply.—Germany has had the largest share of the wall-paper trade in Argentina in the past. Some years ago, however, British manufacturers were fairly successful in obtaining trade in cheap and medium-priced papers. A noticeable characteristic of British-made wall-paper is the superior printing of flowers. The best class of wall-paper has always come from France. Swedish and Italian papers have had little sale.—"Board of Trade Journal."

BRITISH PATENT SPECIFICATION.

Selected by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the completed specification.

No. 102,626 (106, Jan. 4, 1916).—Gas Fires.—C. Scott-Snell, of Grosvenor House, Ridgway, Wimbledon, and David Anderson, of West Hill House, West Hill, Gravesend.—This invention relates to gas fires in which refractory material is heated in flames from Bunsen burners and the heat therefrom used to warm apartments, and often with or also without supplementary appliances to boil water or do other culinary operations. It has been usual in such fires to place a mass of fire-clay at the back of the refractory material which becoming warm

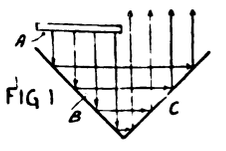


FIG. 1

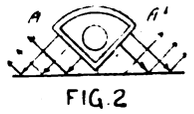


FIG. 2

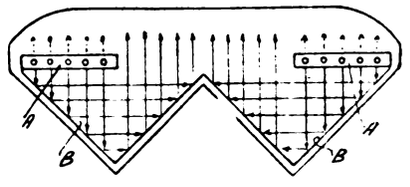


FIG. 6

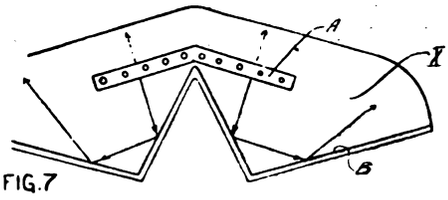


FIG. 7

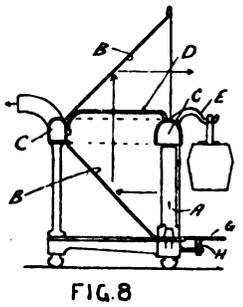


FIG. 8

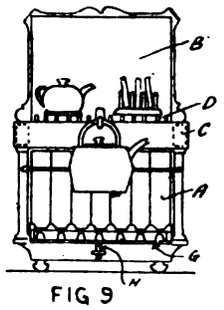


FIG. 9

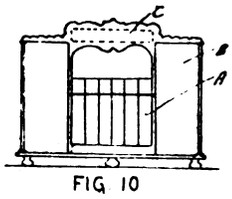


FIG. 10

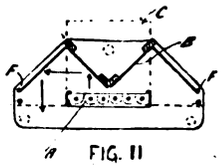


FIG. 11

throws heat into the apartment. Such material is generally backed also by metal, and when the gas fire has been in operation for a time it will be found that this metal attains a considerable temperature. As, however, this metal generally is backed up against a fire-place the heat therefrom, whether radiant or carried off by air convection currents, generally finds its way up the chimney without benefit to the apartment. Until such a backing to the refractory material becomes warmed it is, of course, reducing the effectiveness of the fire, and delaying the attainment of maximum heat delivery to the apartment. The object of this invention is to produce a

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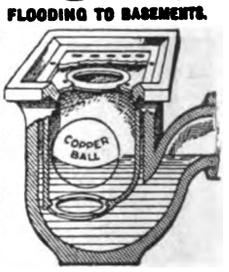
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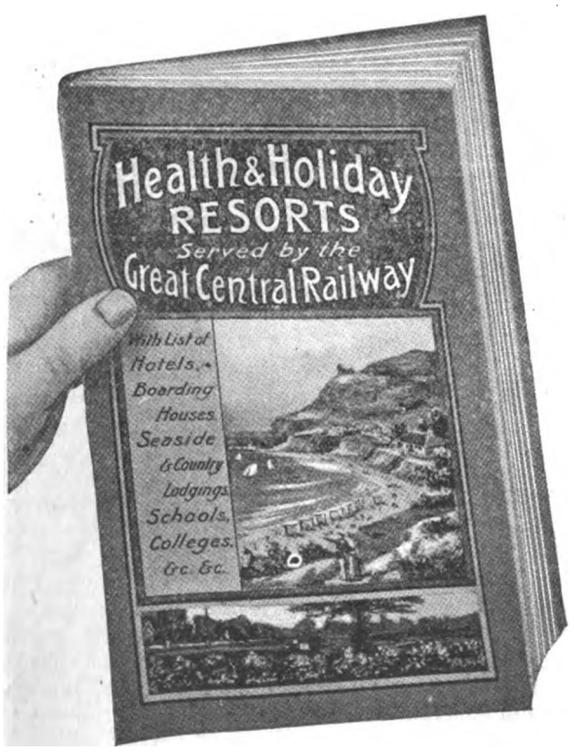
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gas fire which shall be quicker in reaching maximum heat delivery as well as giving a higher efficiency, and inter alia to provide an increase in its utility as a domestic article. The gas fires in this invention are without the usual fireclay or like masses or backings, and we arrange the radiants at a distance from, but in front of, heat mirrors which reflect forwardly or angularly the heat rays passing backwards from the rear parts of the radiants. By the term heat mirrors is meant heat reflecting surfaces which act as regards heat in the same manner as an ordinary mirror does as regards light. To prevent loss by non-effective dispersion of heat rays, the emissive surface of the radiant should be a plane surface. It becomes possible to design these fires on scientific lines, that is to say, to arrange the angles of the heat mirrors and the surfaces from which the heat is emitted in such relation to each other that the heat rays projected normally from the latter, when received upon the former, shall find uninterrupted passage into the room. Further, it is possible by adjustment of the angles of the heat mirrors to project the rays in a manner best ensuring efficient distribution in a room. As regards material for the heat mirrors, polished brass is employed, as this material has a very high capacity for reflecting heat. It is to be noted that the heat mirrors will reflect the heat even if perfectly cold, which in conjunction with the absence of massive fireclay backing allows of almost instant attainment of maximum heat. Fig. 1 shows how a heat ray emitted normal to a given face A, striking upon an inclined surface B, may be projected across to a second surface C, throughout following the law that the angle of incidence is equal to the angle of reflection. Fig. 2 shows how normal heat rays from two emissive surfaces A and A^1 falling upon a heat reflecting surface are projected at angles complying with the above law. Fig. 6 shows a series of radiants A emitting heat against a reflector B, and as shown by the arrows causing heat to be delivered through a central aperture. In fig. 7 is shown a series of radiants A and reflectors B delivering heat from the sides. The space X at the side is convenient for placing culinary utensils to be kept hot. Figs. 8 and 9, respectively section and elevation of a fire, show the heat being delivered above the radiants, the products of combustion being led around to the back by the flue C. A grid D may be added so that this space may hold culinary materials, and a kettle may be boiled by suspension from a horn E without undue heat to the handle. By an angularly adjustable lip G of reflecting material certain heat rays from the front of the fire may be adjustably deflected (by operating the screw H) to a higher level. Figs. 10 and 11 show respectively a front elevation and a plan of another form of the fire, the deflected heat being delivered at the sides. By releasing any convenient fastening, such as a bolt at F, the reflectors may be withdrawn sideways. The radiants are marked A and reflectors or heat mirrors B, the heat rays normal to the back faces of the radiants being delivered to the front as indicated by the arrows. It will be seen that the heat mirrors stand vertically after the manner of a four-leaf fire screen, the central joint being immediately behind the centre of the row of burners; the two central planes are thrown back, and the outer planes are brought forward (after the manner of the letter M), but the relative angles of the planes are such that heat radiated perpendicularly to the back face of the row of radiants falls at 45° upon the adjacent plane and therefore reflected across to the outer plane, striking it at a similar angle and from this into the room parallel with the heat rays from the front of the radiants but at the side thereof. Thus the effective width of the fire is doubled.—Dec. 27, 1916.

AT a special meeting of the British Academy, on March 21, M. Paul Hymans, the Belgian Minister, will read a discourse written for the Academy by the late M. Verhaeren, being the annual lecture on art in relation to civilisation. At the time of his death M. Verhaeren was arranging to visit London to deliver the lecture.

PATENT SPECIFICATIONS.

Selected by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

No. 100,019 (Jan. 14, 1916).—J. M. Lap, 23 Linnaenskade, Watergraafsmeer, Holland. Method of and composition for destroying parasites and the like vermin in wood and the like materials.

103,313 (May 17, 1916).—Harry Haynes, Belmont Passage, Lawley Street, Birmingham. Construction of damp-proof or weather-proof walls.

102,773 (4,604, March 29, 1916).—J. I. Kirby, 5 Victoria Street, West Bromwich, Staffs. Barless front fittings for domestic firegrates.

103,279 (13,727, Sept. 27, 1916).—George Pate, of Carron Company, Carron, Stirling, and A. R. Wood, of the same company. Electric heating and cooking apparatus.

13,753.—Sept. 27, 1915.—E. H. Staber, Grand Hotel, Calcutta. Paving composition and method of producing the same.

103,040 (4,033, March 18, 1916).—Wallace Sunderland, West Royd, Fearnville Park, Roundhay, Leeds. Valves.

103,252 (8,392, June 14, 1916).—Vereinigte Huttenwerke Burbach-Eich-Dudelingen A.G. Dudelingen, Luxemburg, and of Burbach, near Saarbrucken, Germany. "Universal" rolling mills for rolling I-beams.

103,253 (8,634, June 19, 1916).—F. H. Johansson, 153 Herrhagen, Karlstad, Sweden. Wood sawing machines.

103,260 (10,327, July 22, 1916).—J. Halden & Co., Ltd., and J. B. Halden, Rowsley Works, Reddish, Stockport, Lancs. Drawing boards.

101,217 (11,486, Aug. 14, 1916, dated under International Convention Aug. 14, 1915).—S. J. Frank, 41 Liberty Street, Manhattan, N.Y. Stop beads for windows.

101,632 (13,610, Sept. 25, 1916, dated under International Convention Sept. 29, 1915).—J. W. A. de Wild, 37 Haagscheveer, Rotterdam, The Netherlands. Clamping device for use with poles, battens, and the like.

103,064 (7,453, May 25, 1916).—Leon Ottinger, 31 Nassau Street, New York, U.S.A. Latches.

103,328 (Jan. 21, 1916).—V. H. Richard, 51 Rue de Douai, Paris. Apparatus for cooking and heating by means of gas.

103,329 (Jan. 21, 1916).—J. F. Ovenden, 51 Maplethorpe Road, Thornton Heath, Surrey. Joints for pipes and other articles.

103,333 (Jan. 22, 1916).—John Lomax, Beech House, Victoria Road, Eccles Old Road, Pendleton, Manchester. Chimney tops and the like.

103,350 (Jan. 28, 1916).—Shaw & Carter, Ltd., and G. F. Carter, Bull Ring, Birmingham. Cloak-room fittings for use in schools, works, and other places.

103,364 (Feb. 8, 1916).—Jackson Boilers, Ltd., and J. H. N. Peel, 14 White Horse Street, Boar Lane, Leeds. Self-fitting water heaters or boilers.

103,372 (Feb. 23, 1916).—Universal Chemical Sprinkler Corporation, Croton-on-the-Hudson, Westchester, New York. Fire extinguishing apparatus.

103,378 (Mar. 8, 1916).—J. H. Davies, Ravenecragg, Braithwaite, and Joseph White, Thornthwaite, Keswick, Cumberland. Chimney tops and cowls.

103,401 (May 1, 1916).—H. N. Urquhart, "Clovelly," Essex Road, Gravesend, Kent. Means for indicating pressures, depths of water or the like.

103,422 (June 13, 1916).—Zouri Drawn Metals Co., Chicago Heights, Ill., U.S.A. Glazing with plate glass.

Any of the above specifications may be obtained from J. D. Roots & Co.

A GUIDE to the Registration of Business Names Act, 1916, has been written by Kenneth Brown, solicitor, and will be published immediately by Sir Isaac Pitman & Sons, Ltd., of 1 Amen Corner, E.C. It sets forth plainly the obligations placed by the Act on all classes of businesses. The price is 1s. net.

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VARIETIES.

THE Egyptian Government is spending £150,000 on irrigation works.

MR. GEOFFREY WYVILLE HOME, A.R.I.B.A., has been gazetted a Second-Lieutenant in the Royal Garrison Artillery. He enlisted in November 1914.

THE Grammar School, Swansea, is being supplied with Shorland's exhaust roof ventilators by Messrs. E. H. Shorland & Brother, Ltd., of Failsworth, Manchester.

CARDIFF Technical Instruction Committee has decided to ask the Master Builders' Association to adopt the scheme for the instruction of apprentices recently adopted by the master builders in the London area.

THE Queen visited the Devons Road School, Bow, on Friday, the 23rd ult., and inspected the pictures which have been presented to the London County Council by the Arts in Wartime Committee of the Professional Classes War Relief Council.

IN view of the difficulty of obtaining supplies of special types of water taps, the Ministry of Munitions recommends all water engineers to relax their regulations for the time being, and to accept any effective substitute for the particular type of fitting they usually require.

AT a meeting of the Hull Finance Committee the Town Clerk reported that the Local Government Board had sanctioned a loan of £60,000 for extensions in the Electricity Department. He said that £30,000 was for mains, and £15,000 for a sub-station. The sanction was given on the understanding that the expenditure was necessitated by the war.

THE death occurred at Birmingham on the 27th ult. of Mr. John Downing Wragg, head of the firm of Thomas Wragg & Sons, pipe manufacturers, Swadlincote. He was a director of the Burton Old Bank, and served for several years on the Derbyshire County Council. Mr. Wragg recently lost his wife, and later two of his sons were killed in action.

THE Accommodation Committee, of which Sir Alfred Mond is Chairman, and which was appointed by the Prime Minister, has now appointed two honorary inspectors to investigate the use made by Government Departments of the premises occupied by them. The two gentlemen appointed are Mr. R. Leonard Powell, of Heatherbank, Chislehurst, late of the firm of T. J. & T. Powell, and Mr. Charles T. Ruthen, C.E., architect.

THE Northfleet Urban Council has been advised that the owners of land on the Kent side of the Thames from Botany Bay to Gravesend favour the erection of a deep-water pier at Gravesend capable of berthing ocean-going steamers. It is also stated that the South-Eastern Railway Company favour the project, and will be disposed to develop the railway system at Northfleet to facilitate the rapid transportation of goods. The High Commissioner for Australia is giving the scheme his official support.

THE death took place at his residence in Falkirk on the 20th ult. of Mr. E. C. Churchward, general manager of the Scottish Central Electric Power Company. Born at Exeter, Mr. Churchward served his apprenticeship as an engineer with Messrs. Barclay & Co., Kilmarnock. Subsequently he was commissioned by several firms to carry out important engineering contracts, and afterwards designed and superintended the erection of the electric-power stations in Fife and Bonnybridge. On the completion of the latter he was appointed general manager of the Scottish Central Electric Power Company, a position which he held until his death.

PRESIDING at the Carnarvon Board of Guardians, Mr. J. C. Lloyd Williams proposed a resolution adopted by the Festiniog Urban Council appealing to the Director of National Service to regard the slate trade as essential to the district, as the closure of the quarries would be disastrous to the population, and it would be impossible at the termination of the war to reopen most of them, and pointing out that most of the men now employed were over military age or not eligible for national service. The Chairman remarked that at the Dinorwic Quarries probably 800 of the men employed were over fifty-six years of age, and what was to become of them and their families in the event of the quarries being shut down? In the same way the proprietors of the Festiniog and Nantlle quarries could not pay for pumping water when they had not a penny coming in.

DUNFERMLINE Dean of Guild Court have passed plans presented by Messrs. Holloway Brothers, contractors, London, for the building of temporary dwelling-house accommodation for their men at Rosyth. The huts are to be used for the accommodation of the workmen who are to be engaged in the erection for the Scottish National Housing Company of 1,000 dwellings for the employees. Each block will provide accommodation for 130 men, and it will have a dining-room, cookhouse, drawing-room, drying-room, kitchen, and bathrooms. It will be lit by electricity. The buildings are of a temporary character, and will exist during the period of the contract only.

MR. AND MRS. W. WATKINS, of Leyland House, Lincoln, have celebrated their golden wedding. The couple were married on February 20, 1867, at Beccles. Mr. Watkins went to Lincoln in 1858, taking a position as assistant to Mr. Goddard, architect. In 1864 Mr. Watkins started business on his own account as an architect and surveyor, and he has had a successful career. He is a Fellow of the R.I.B.A., and has written many practical books, published by the Institute, chiefly on the Cathedral. He was Mayor of Lincoln in 1888-89, was for several years a prominent member of the Lincoln City Council and the Lincoln Board of Guardians, and he has been a Justice of the Peace for the city for a long period.

THE Government has introduced a Bill amending the Courts (Emergency Powers) Acts for the purpose of granting relief in connection with the present war from liabilities and disqualifications arising out of certain contracts. It gives the Court power to suspend or annul contracts the terms of which could not be enforced owing to war difficulties, without serious hardship, and affords relief from liability, when fulfilment of a contract is interfered with by requirements of a Government Department. The last clause gives relief from disqualification for membership of the House of Commons through supplying the Government with certain property for war purposes or receiving compensation for requisitioned property.

AT the Edinburgh Architectural Association a lecture was delivered last week by Mr. John Ritchie, M.A., LL.B., Perth, on "Romanesque Churches in Poitou" in the Lecture Hall of the College of Art. Mr. John Wilson, F.R.I.B.A., vice-president, presided. The lecturer said the problem which these Romanesque builders had before them was how to vault with stone a building of the type of the early Christian basilica. In the Poitevin school the method adopted was to construct a tunnel vault of stone which rested directly on the pier arches of the nave. There was no triforium; no clerestory lighting. All the light for the interior was derived from the windows of the aisles.

AT the quarterly meeting of the Council of the National Association of Master House Painters and Decorators held at the Salford Town Hall the principal business was the ratification of a proposal put forward by the operatives for the establishment of a national joint committee of employers and operatives, with the object of raising the status of the craft. The functions of the Committee will be to prevent strikes and lockouts, to deal with questions arising out of the demobilisation of apprentices after the war, to help painters partially disabled in the war, and to settle questions of status, education, and payment of apprentices. The Association has been assisting the Army Canteens Committee by decorating canteens and recreation-rooms in the camps throughout the country. This work has been done without profit, only out-of-pocket expenses being paid by the War Office.

THE death has occurred at Glasgow of Mr. Andrew Francis Stewart Bryden, I.A., of Messrs. R. A. Bryden & Robertson, architects. He was the fourth son of the late Mr. Robert Alexander Bryden, who had a wide reputation as an architect. The deceased gentleman was trained in the office of his father and also with Messrs. Oatley & Skinner, Bristol. For the last ten years he was architect to the Orphan Homes of Scotland (Quarrier's), the Consumption Sanatoria, and the Colony of Mercy for Epileptics at Bridge of Weir, and in that capacity he designed the Elise Hospital, gifted by Sir Thomas Glen Coats, Bart. On the death of his father he completed in collaboration with his partner the Glasgow Maternity Hospital, and among his other work was the Berwickshire Higher Grade School, Duns. Mr. Bryden had many interests outside his profession. Until lately he was an active worker in the Sabbath school connected with Claremont United Free Church Mission. On going to reside on the south side he identified himself with Camphill United Free Church, of which he was a manager. He was a member of the Automobile Club, and of the Western Branch of the British Astronomical Association. He is survived by a widow and two children.

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THE
Architect and Contract Reporter.
FRIDAY, MARCH 9, 1917.

EDITORIAL NOTICES.

The Editor will always be pleased to examine drawings or articles with a view to publication, but cannot be responsible for the safety of those sent, though every reasonable care will be taken. Contributors desiring payment should clearly state their wishes. No payment will be made until after publication, and a commission to prepare articles or drawings does not necessarily imply acceptance or approval.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

COMPETITION OPEN.

OLDHAM.—April 24.—The Health Committee are prepared to receive competitive designs for a proposed Nurses' Home at Westhulme from architects practising within the borough. A plan of the site may be seen and instructions and suggestions for the guidance of architects may be obtained on application at the Borough Surveyor's Office. Premiums of £15, £10, and £5 respectively will be awarded to the authors of the designs which are selected as first, second and third in order of merit. Competitive drawings with sealed letter containing name and address of the author to be delivered under cover at the Borough Surveyor's Office not later than 24th April next, endorsed "Design for Nurses' Home."

CONTRACTS OPEN.

FULWOOD.—March 10.—For supply and delivery of the following:—Granite macadam, earthenware pipes, iron pipes, iron gulley tops, manhole covers, lead pipe, scavengers' brushes, curbs, channels, &c., for the Urban District Council. Mr. Arnold Brierley, Council Office, Fulwood.

HEREFORD.—March 14.—For additions to the Sanitary Laundry, Ledbury Road, Hereford. Messrs. W. W. Robinson & Son, architects, Hereford.

LONDON.—The Commissioners of H.M. Works, &c., invite tenders for the execution of ordinary works and repairs to the buildings in their charge in the London districts for a period of one year from April 1, 1917. Maps showing the six districts may be seen, and copies of the lists of buildings, conditions of contract, schedules, memoranda of the amounts paid under the current contracts, and all particulars may be obtained on application to the Contracts Branch, Storey's Gate, S.W., on payment of £1 1*s.* deposit. Tenders may be submitted for one or more contracts, and alternative tenders for the acceptance of two or more contracts may also be submitted. Tenders must be delivered on a date to be subsequently announced, addressed to The Secretary, H.M. Office of Works, &c., Storey's Gate, London, S.W. (See Advertisement.)

ROTHWELL.—March 19.—For erection of lavatories, &c., to the Council offices, Rothwell, for the Rothwell Urban District Council. Mr. W. Dodgson, clerk, Rothwell, near Leeds.

SHEERNESS.—March 14. For the construction of pumping-station buildings, chimney shaft, approach road and other works at Sheerness East, for the Sheerness Urban District Council (Mr. F. W. S. Stanton, consulting engineer). Deposit £2 2*s.* The Water Engineer, Trinity Road, Sheerness.

SHEPTON MALLET (SOM.).—March 10.—For the supply and delivery of limestone, quartzite, granite, basalt, tarred macadam, asphalt, gravel and sand on the different main and district roads, for the Urban District Council. Mr. A. E. Nalder, clerk, Council Offices, Shepton Mallet.

SUTTON COLDFIELD.—March 19.—For supply of the following materials during year ending March 31, 1918, for the Corporation—viz.: (1) granite macadam; (2) limestone; (3) gravel and broken pebble stones; (4) Yorkshire kerb; (5) Rowley setts; (6) earthenware pipes; (7) cement and lime; (8) iron castings; (9) iron and steel; (10) timber; (11) hardware; (12) oils and paints (small quantities only); (13) bass brooms. Mr. W. A. H. Clarry, Council House, Sutton Coldfield.

THORNEY (PETERBOROUGH).—March 10.—For erection of one pair of cottages in Green Drove, Thorney. Messrs. J. G. Stallebrass & Sons, architects, North Street, Peterborough.

TENDERS.

LONDON.

For supply of cable for the Electricity Committee of the Woolwich B.C.

W. T. Henley's Telegraph Works Co., Ltd., London (*accepted*)	£1,444 7 11

LOUTH (IRELAND).

For erection of bathrooms and lavatories at the Louth County Infirmary. Mr. V. J. O'CONNELL, M.I.M. and C.E., architect, Dundalk.

J. McAdorey	£1,583 0 0
T. McDONALD & SONS, Dundalk (*accepted*)	1,540 0 0

WREXHAM.

For erection of motor garage at Court Street, Wrexham, for Dr. H. Drinkwater. Mr. J. H. SWAINSON, 1 Hill Street, Regent Street, Wrexham, architect.

H. C. DAVIES, Lord Street, Wrexham (*accepted*)	£147 12 9

WILNE CHURCH, Derbyshire, was destroyed by fire last Wednesday, only the tower and the Willoughby Chapel being left; the famous font, which is presumed to be twelve centuries old, together with several of the ancient monuments, were practically ruined.

THE Blantyre Co-operative Society have just completed a large addition to their central premises in Stonefield, the building operations having been going on for two and a half years. A large number of extra shops and a hall have been added. The cost of the new extension has been £26,465. To celebrate the opening of the premises a series of entertainments have been provided for the members.

THE Govanhill Baths and Washhouse erected in Calder Street by the Baths Committee of Glasgow Corporation have been formally opened by Lord Provost Sir Thomas Dunlop, Bart., and Bailie Hamilton Brown, convener of the committee, presided over a large attendance. The Chairman said the inhabitants of Govanhill were highly favoured in having in their midst the best equipped baths in Glasgow, which had been erected at a cost of about £40,000. Those magnificent buildings were an honour to the city. There were now twenty-two baths establishments in Glasgow. Their revenue last year was £36,000, and the expenditure £40,000. That was a deficit of £4,000 so far as bookkeeping was concerned, but the Baths Committee were of opinion that £4,000 spent on the baths of Glasgow was wisely spent. Last year they gave free admission to the swimming ponds to 61,000 boys and 19,000 girls, and 103,450 soldiers, and 14,000 Belgian families were given the free use of the wash-houses. The baths and wash-houses were a distinct asset to the city from the standpoint of public health. The site of the baths is on ground belonging to the Corporation in Calder and Kingarth Streets, and covers an area of 3,455 square yards. The frontages to those streets are built of stone, and the other walls of brick; the walls inside are tiled; the floors of bath and pond rooms are of terrazzo, and the floors of the hot rooms are of tiles. There are two swimming ponds and a "learners'" pond, with hot and cold sprays, foot baths, &c., in each pond room; a Turkish bath with three hot rooms, a Russian bath, a shampooing-room with two marble slabs, a cold plunge bath, a cooling-room with twenty beds, &c. The water in the ponds is heated by the exhaust steam from a pump which is used for drawing the water continuously from the ponds, and is worked in connection with the filtration and aeration plant. There is an arrangement for mixing salt connected with this plant so that salt water baths can be had. The ponds do not require to be emptied except for repairs. Ferro-concrete has been extensively used in the construction of the buildings. The public wash-house enters from Kingarth Street. It is fitted with sixty-eight wash stalls, and space has been reserved for another fourteen. Drying accommodation is provided for each stall, and there are ten wringing machines. A large waiting-room is provided at the entrance from Kingarth Street. The cost of the establishment was about £35,000, exclusive of the price of the ground, which was £5,182 10*s.*

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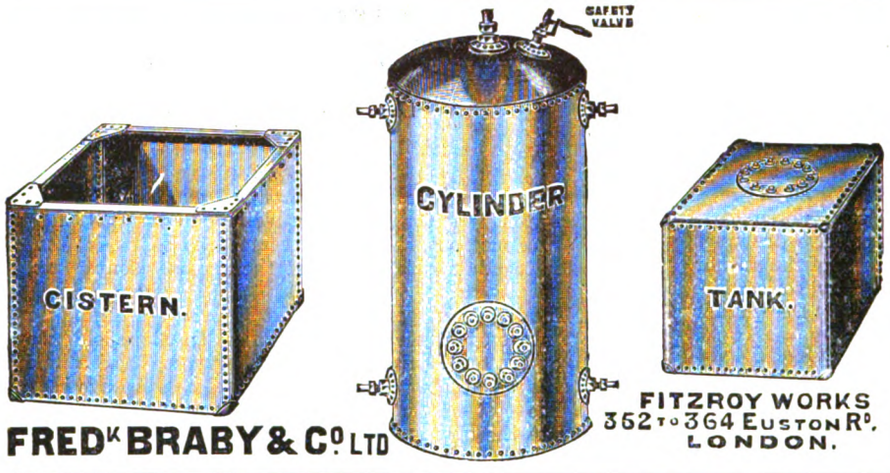
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BUILDING AND CONSTRUCTION WORKS IN JANUARY.

ACCORDING to the latest issue of the "Board of Trade Labour Gazette" men remaining in the building trades were fairly well employed during the first month of this year, partly owing to Government requirements, and in some cases a shortage of labour was reported, though private building work (except repairs) continued slack and showed a seasonal decline, the weather being very unfavourable for outdoor work.

The general percentage of State-insured workpeople unemployed in all building occupations was 1.21, compared with 10.7 in December and 2.04 a year ago. The percentage for painters was as high as 3.94 and for plasterers 3.31, while on the other hand the figure for navvies was only 0.38 and for plumbers 0.42. The increase compared with a month ago and the decrease compared with a year ago affected all occupations.

Occupations.	Number Insured at end of January, 1917.	Percentage Unemployed at end of January.	Inc. (+) or Dec. (−) on a	
			Month ago.	Year ago.
Carpenters	87 560	0 64	+ 0·03	− 0·46
Bricklayers	39,124	1·14	+ 0·10	− 0·75
Masons	21,964	2·00	+ 0·34	− 0·74
Plasterers	11,108	3·31	+ 0·25	− 2·20
Painters	71,060	3·94	+ 0·27	− 2·69
Plumbers	24,257	0·42	+ 0·08	− 0·63
Other skilled occupations ...	27 893	0 60	+ 0 11	− 0·37
Navvies...	88,327	0.38	+ 0 04	− 0·07
Labourers	173,125	0·77	+ 0·17	− 0·24
ALL OCCUPATIONS ...	544,718	1·21	+ 0·14	− 0·83

Employment continued fairly good for those workpeople remaining in the brick trade, but was affected by the severe weather. There was frequently a scarcity of men. Employment was fairly good in the Northern Counties, Lancashire and Cheshire, and in the Midland Counties. It was reported as slack in the Eastern Counties and quiet in the Plymouth district and in North Wales. In other districts it was fair on the whole. Returns from firms employing 4,989 workpeople in the week ended January 27 showed a decrease of 0.7 per cent. in the number employed and of 2.2 per cent. in the amount of wages paid. Compared with a year ago there was a decrease of 10.7 per cent. in the number employed and of 0.9 per cent. in the amount of wages paid.

In the cement trade there was a general shortage of all kinds of male labour, and overtime was frequently worked, especially in the Thames and Medway district.

Returns from firms employing 6,175 workpeople in the week ending January 27 showed a decrease of 2.3 per cent. in the number employed and an increase of 0.5 per cent. in the amount of wages paid compared with a month ago. Compared with a year ago there was a decrease of 8.8 per cent. in the number employed and of 2.5 per cent. in the amount of wages paid.

BRITISH PATENT SPECIFICATION.

Selected by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the completed specification.

No. 103,378 (3,473, Mar. 8, 1916).—Chimney pots and cowls.—J. H. Davies, "Ravenecragg," Braithwaite, and Joseph White, Thornthwaite, both near Keswick, Cumberland.—This invention relates to chimney pots and cowls of the type which, to prevent down draughts when winds are blowing, especially sudden gusts, are provided with one or more pairs of oppositely and hingedly or pivotally mounted wind guards or doors, balanced and connected together by stays in such a manner that when there is no wind the oppositely disposed smoke exits are equal, but directly the wind blows the wind guard or door facing the wind closes, preventing down draught, whilst the other wind guard or door opens twice its usual distance, so that the area for the exit of the smoke remains the same. In this invention means are provided to assist in the equilibrium of the doors or guards consisting of a slidable weight adjustably mounted on the curved and interior or curved and exterior stay connecting a pair of oppositely disposed doors or guards together. Fig. 1 is a side elevation of a pot, partly in section, showing wind guards or doors connected together by an interior and curved stay. Fig. 2 is a similar view, but showing wind guards connected together by an

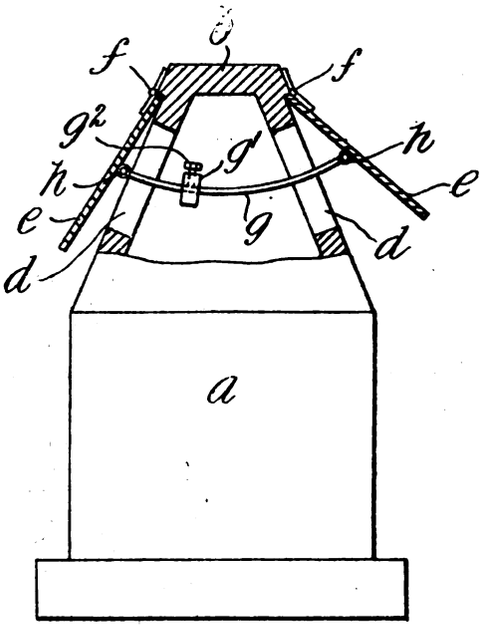


Fig. 1.

exterior stay. Like letters of reference indicate corresponding parts in the two figures. The pot or cowl *a* is closed at its top *b* and provided with sloping sides *c*, in all of which is an opening *d* for the exit of the smoke, and these openings *d* are protected by means of balanced

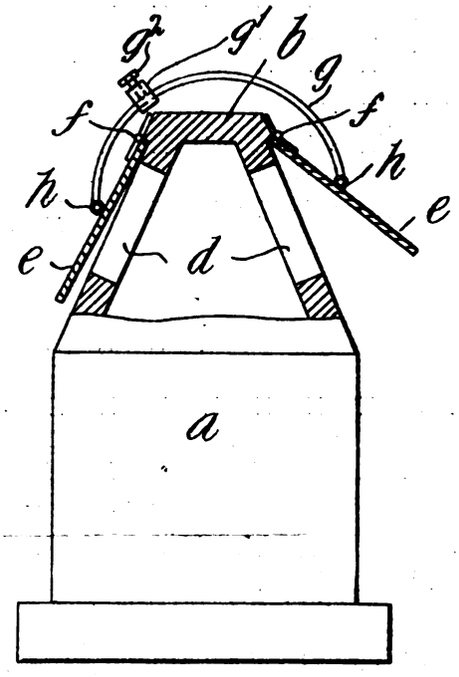


Fig. 2.

wind guards or doors *e* pivotally affixed at *f* to the top *b* of the pot *a*, and each pair of opposite guards or doors *e* is held in position by means of a curved stay *g* connected to each pair of opposite guards or doors *e* by means of joints or hinges *h*. The curved stays *g* connecting a pair of guards or doors *e* may be arranged

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PRUDENTIAL ASSURANCE COMPANY, LIMITED.

Chief Office: HOLBORN BARS, LONDON.

Summary of the Report presented at the Sixty-eighth Annual Meeting, held on March 1st, 1917.

ORDINARY BRANCH.—The number of policies issued during the year was 48,258, assuring the sum of £5,080,989, and producing a new annual premium income of £373,309. The premiums received during the year were £5,230,170, being an increase of £72,654 over the year 1915.

The claims of the year amounted to £4,573,917, of which £249,689 was in respect of War Claims. The number of deaths was 12,407. The number of endowment assurances matured was 27,065, the annual premium income of which was £146,894.

The number of policies including annuities in force at the end of the year was 932,539.

INDUSTRIAL BRANCH.—The premiums received during the year were £8,897,723, being an increase of £391,660.

The claims of the year amounted to £4,005,251, of which £827,879 was in respect of 49,625 War Claims. The bonus additions included in the claims amounted to £112,565. The total number of claims and surrenders, including 16,741 endowment assurances matured, was 398,917.

The number of free policies granted during the year to those policyholders of five years' standing and upwards who desired to discontinue their payments was 69,775, the number in force being 2,004,282. The number of free policies which became claims during the year was 50,016.

The total number of policies in force in this Branch at the end of the year was 21,305,330; their average duration exceeds thirteen and a quarter years.

The War Claims paid during the year, in both Branches, number 52,433 and amount to £1,077,568. The total paid up to the present on this account since the outbreak of War exceeds £1,860,000, in respect of over 88,000 claims.

GENERAL BRANCH.—Under the Sickness Insurance Tables the premiums received during the year were £7,780, and £3,974 was paid in Sickness claims. Under the new Memorandum of Association, 13 Sinking Fund policies were issued during the year, assuring a capital sum of £131,300 and producing an annual income of £2,531. The whole of the fund of £23,399 is reserved for future liabilities.

The assets of the Company, in all branches, as shown in the balance sheet are £99,123,746, being an increase of £4,328,948 over those of 1915.

In the Ordinary Branch the surplus shown is £1,418,240, including the sum of £219,331 brought forward from last year. Out of this surplus the Directors have added £400,000 to the Investments Reserve Fund, which stands as at 31st December, 1916, at £2,000,000. In addition, £800,000 has been added to the Special Contingency Fund, which stands at £1,500,000, and £218,240 has been carried forward. The Directors have decided to continue the payment of a bonus on all participating policies of this Branch which become claims either by death or maturity during the financial year. They much regret, however, that the present circumstances do not justify them in making a general distribution of bonus, and the shareholders will again receive no part of the profits of this Branch. The Directors have every confidence, however, that the interests of the participating policyholders are fully secured by the Special Contingency Fund referred to above.

In the Industrial Branch the surplus shown is £1,000,892, including the sum of £249,282 brought forward from last year. Out of this surplus the Directors have added £415,082 to the Investments Reserve Fund, which after deducting £15,082, representing realised loss on Securities stands as at 31st December, 1916, at £1,400,000.

The provisions relating to Industrial Assurance contained in the Courts (Emergency Powers) Act, 1914, have again resulted in a severe strain upon the Company's resources, which has reduced the surplus shown on the operations of the year, and whilst these provisions remain in force the strain must continue. In these circumstances the Directors have not felt justified in drawing upon the £350,000 set aside last year to meet contingent liabilities created by the Act, but have met the loss out of revenue. The Courts (Emergency Powers) Act Reserve therefore stands, as at 31st December, 1916, at £350,000.

The profit-sharing scheme in the Industrial Branch provides that after payment of a fixed dividend to the shareholders any surplus profit shall be divided into six parts: one part being retained by the shareholders, one distributed among the outdoor staff of the Company, the remaining four parts being allotted by way of bonus to the policyholders of the Industrial Branch.

The sum which has already been paid or allotted under this scheme by way of bonus to the Industrial Branch policyholders and outdoor staff amounts to £2,825,000. The Directors regret that the amount of surplus shown this year does not permit of any increase being made to this sum: there is, however, still a balance remaining, for which bonus additions will be made to the sums assured on all policies in the Industrial Branch on which at least thirty years' premiums have been paid and which become claims either by death or maturity of endowment from the 2nd March, 1917, to the 7th March, 1918, both dates inclusive.

In addition to the reserves held against the liabilities shown by the valuation, the total amount reserved for contingencies, including amounts carried forward, exceeds £5,650,000.

The Balance Sheet includes amounts totalling over £17,750,000 in British Government Securities; this represents an increase compared with last year of about £4,500,000.

During the year the Company has lent or sold to the Treasury under the various mobilisation schemes securities of a nominal value of £6,955,159.

The Prudential Approved Societies formed under the National Insurance Act, 1911, continue to make satisfactory progress, and the valuable services rendered to the members by the Agency Staff are highly appreciated. The amounts distributed in benefits to the members at their homes during the year amounted to £1,320,397, making a total exceeding £5,700,000 since the Act came into operation. An arrangement has been made and approved by the Insurance Commissioners whereby the Prudential Approved Society for Miners is absorbed into the Prudential Approved Society for Men and the Society for Laundresses is absorbed into the Society for Women as from the 31st December, 1916, thus reducing the number of Prudential Approved Societies to four.

During the year the Government has continuously availed itself of the services of the Company and its officials; it has been a matter for congratulation that the services so rendered have met with the greatest appreciation.

The indoor and outdoor Staffs have been further depleted during the year by Naval and Military demands, and the Company is now supplying more than ten thousand men to the fighting strength of the nation.

Balance Sheet of the Prudential Assurance Company, Limited, being the Summary of all Branches, on the 31st December, 1916.

LIABILITIES.

	£	s.	d.
Shareholders' capital	1,000,000	0	0
Life assurance fund—Ordinary Branch	£47,884,909 10 8		
Life assurance fund—Industrial Branch	44,553,424 17 0		
Insurance fund—General Branch	23,399 8 7		
	92,461,733	17	0
Investments reserve funds	3,400,000	0	0
Contingency fund	1,500,000	0	0
Courts (Emergency Powers) Act Reserve	350,000	0	0
Claims under life policies intimated and in course of payment	367,020	15	2
Annuities due and unpaid	5,984	5	5
Balance of bonus under life policies reserved for distribution	30,296	14	10
	£99,123,745	12	5

ASSETS.

	£	s.	d.
Mortgages on property within the United Kingdom	9,000,073	13	6
Mortgages on property out of the United Kingdom	372,966	0	2
Loans on porochial and other public rates	12,408,581	10	0
Loans on Life interests	1,114,467	0	11
Loans on Reversions	45,963	10	4
Loans on stocks and shares	81,470	2	0
Loans on Company's policies within their surrender values	2,804,214	0	7
Loans on Personal security	*Nil*		
Loans to Educational institutions secured on income	30,936	17	2
Carried forward	£25,879,696	16	2

ASSETS.—*continued.*

	£	s.	d.
Brought forward	£25,879,696	16	2
Investments:—			
Deposit with the High Court (£16,266 13s. 4d. 4½% War Loan, 1925–1945)	18,000	19	1
British Government Securities	17,734,105	2	3
Bank of England stock	143,117	2	10
Municipal and county securities, United Kingdom	1,01[illegible]	17	1
Indian and Colonial Government securities	4,929,2[illegible]	5	11
Colonial provincial securities	1,382,880	18	1
Indian and Colonial municipal securities	3,540,221	5	3
Foreign Government securities	7,101,205	2	4
Foreign provincial securities	782,000	16	7
Foreign municipal securities	3,305,404	7	6
Railway and other debentures and debenture stocks and gold and sterling bonds—Home and Foreign	12,906,144	9	9
Railway and other preference and guaranteed stocks and shares	3,253,104	5	5
Railway and other ordinary stocks and shares	2,933,617	4	9
Rent Charges	505,705	12	7
Freehold ground rents and Scotch feu duties	4,784, 30	0	0
Leasehold ground rents	8,543	14	8
House property	4,451,470	16	3
Life interests	34,628	14	6
Reversions	1,249,700	11	10
Agents' balances	7,674	0	6
Outstanding premiums	722,737	17	0
Outstanding interest and rents	207,597	2	4
Interest, dividends and rents accrued but not payable	486,245	15	1
Bills receivable	*Nil*		
Cash—On deposit	20,000	0	0
In hand and on current accounts	625,997	11	5
	£99,123,745	12	5

The values of Stock Exchange securities are determined, under the Articles of Association of the Company, by the Directors. Due allowance has been made for accrued interest, and the book value of these securities as set forth in the Balance Sheet stands considerably below cost price. A careful investigation as to the actual saleable value on 31st December, 1916, compared with the book value, shows that the Investments Reserve Funds are much more than sufficient to meet any depreciation of the permanent securities. Terminable securities have been valued on a basis which, with Sinking Funds already established, provides for the equalisation of the book values and the redemption values at the date of maturity.

We certify that in our belief the Assets set forth in the Balance Sheet (having regard to the standards indicated) are in the aggregate fully of the value stated therein less the Investments Reserve and Contingency Funds taken into account, and make ample provision for all the liabilities of the Company. No part of any fund has been applied directly or indirectly for any purpose other than the class of business to which it is applicable.

A. C. THOMPSON, *General Manager.* THOS. C. DEWEY, *Chairman.*
J. BURN, *Actuary.* W. J. LANCASTER,
G. E. MAY, *Secretary.* D. WINTRINGHAM STABLE. } *Directors.*

We report that with the assistance of the Chartered Accountants as stated below we have examined the foregoing accounts and have obtained all the information and explanations that we have required, and in our opinion such accounts are correct and the foregoing Balance Sheet is properly drawn up so as to exhibit a true and correct view of the state of the Company's affairs according to the best of our information and the explanations given to us and as shown by the books of the Company. No part of any fund has been applied directly or indirectly for any purpose other than the class of business to which it is applicable.

PHILIP SECRETAN, W. H. NICHOLLS, } *Auditors.*

We have examined the Cash transactions (receipts and payments) affecting the accounts of the Assets and Investments for the year ended December 31st, 1916, and we find the same in good order and properly vouched. We have also examined the Deeds and Securities, Certificates, &c., representing the Assets and Investments set out in the above account, and we certify that they were in possession and safe custody as on December 31st, 1916.

DELOITTE, PLENDER, GRIFFITHS & CO., *Chartered Accountants.*

13th February, 1917.

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interiorly of the pot *a* as in fig. 1, or externally, and in the latter case would be curved, as in fig. 2, to pass over the top of pot or cowl *a*, said stays whether interior or exterior crossing one another if more than a pair of guards or doors are employed. When the curved stays are inside of the pot they are weighted to assist the equilibrium of the doors or guards; there is arranged on the stay *g* an adjustably slidable weight or iron collar g^1, so that in obstinate cases of down draught the door facing the greatest offending wind could be kept closer to the sloping side and would close much more easily with the assistance of the adjustable weight. The weight g^1, which is placed on the stay *g* between the centre and the door facing the offending wind and is fixed by a set screw g^2, would by force of gravity bring the door nearer to the sloping side. When the curved stays are arranged exteriorly of the pot and are weighted to assist the equilibrium, the weight or iron collar g^1 is placed on the stay *g* between the centre and the door facing the offending wind and by force of gravity brings the door nearer the sloping side, the weight g^1 which is fixed to the stay *g* by a set screw g^2 not being quite heavy enough to close the door owing to the pressure required to entirely lift the opposite door but assisting in action of closing the offending door when the wind is blowing.—Jan. 21, 1917.

PATENT SPECIFICATIONS.

Selected by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

9,522.—Dec. 30, 1915.—J. H. Robinson, 22 King's Drive, Heaton Moor, Stockport, Cheshire. Electric water heater.

103,418 (June 5, 1916).—R. W. Hope and Henry Hope & Sons, Ltd., 55 Lionel Street, Birmingham. Glazing bars of roofs and the like.

103,449 (Sept. 8, 1916).—Mather & Platt, Ltd., Park Works, Manchester. Dry pipe valves for sprinkler installations.

103,454 (Sept. 23, 1916).—Ablett Bell, Kingswell Works, Northampton. Kitchen ranges.

103,082 (11,829, August 21, 1916).—P. F. Mannix, Mayo House, Dallas Road, Lancaster. Door holders.

17,359.—Dec. 10, 1915.—H. M. Kessing, 144 Albert Street, Auckland, New Zealand. Water heater.

17,867.—Dec. 22, 1915.—George Birch, 33 Queen Street, Cheetham Hill, Manchester. Inverted gas Bunsen burners for heating and lighting.

18,092.—Dec. 28, 1915.—W. K. Twomey, 228 Irving Street, Toledo, Ohio, U.S.A. Burners and methods of burning gas.

103,404 (May 4, 1916).—James Chapman, St. Anne's Street, James' Road, Forfar. Making of roadways.

103,417 (May 27, 1916).—W. H. Haslam, 75 Bradford Street, Bolton. Grates for domestic fireplaces.

101,147 (July 24, 1916, dated under International Convention Aug. 9, 1915).—S. M. Ford, 511 Grand Avenue, St. Paul, Minn., U.S.A. Lath board or substitute for lathing to form a foundation for plaster.

103,496.—Jan. 20, 1916.—K. E. Alitalo, Abo, Finland. Fire extinguishers.

No. 100,640 (May 29, 1916, dated under International Convention June 4, 1915).—Adolphe Garrivier, 56 rue des Chalets, Toulouse. Reinforced concrete blocks for paving tramways and railways.

103,681 (Jan. 31, 1916).—Walter Wilson, 51 Elliott Street, Dunfermline. Reinforced concrete blocks, slabs, beams and the like.

103,764 (June 23, 1916).—H. J. Radford, 2 Midland Road, Gloucester. Fire-grates.

Any of the above specifications may be obtained from J. D. Roots & Co.

THE death of Mr. James Forrest took place on Friday last at St. Leonards; for many years he was the Honorary Secretary of the Institution of Civil Engineers.

NEW CATALOGUES.

MESSRS. PICKUP & CO., LTD., of Pearl Brook Works, Horwich, Lancashire, have just issued their catalogue of tanks, receivers, pots, stills, taps, &c., for chemical purposes in acid-resisting stoneware. Messrs. Pickup enjoy a well-earned reputation for their sanitary goods, and they have specially laid themselves out to produce a satisfactory make of ware to meet the exacting requirements of chemical manufacturers. We are under the impression that not many of our sanitary engineers have applied themselves to this industry, which before the war was to a considerable extent in the hands of German firms. Messrs. Pickup & Co. inform us that they have been enabled to successfully handle this part of the industry, and have in consequence prepared for issue this illustrated catalogue. As the result of long practical experience, blending of raw materials and careful manufacture throughout, Messrs. Pickup have obtained an unrivalled reputation for the strength, efficiency and reliability of their cane-glazed chemical ware, as will be proved by the testimonials which they have received, and the fact that in all cases they are receiving repeat orders. In the small, well-printed catalogue before us Messrs. Pickup have been able to show only a few representative patterns, but quotations can be given for all requirements.

THE new catalogue of the well-known firm of Edward Wood & Co., Ltd., of the Ocean Ironworks, Manchester, contains many points of interest to the architect, engineer and contractor; some excellent views of leading works carried out by this company in various parts of the world, with important table matter, giving dimensions in metric equivalents and notes in the requisite foreign languages, is of special importance in connection with the firm's extensive export business. The book is by this means a work of reference. Messrs. Edward Wood & Co., Ltd., carry on a branch business in Buenos Ayres, trading as the British Structural Steel Co., Ltd., which enables them to deal satisfactorily with a largely increasing South American trade. Recently the firm have made considerable extensions to their works, and with a highly efficient staff they are enabled to give prompt attention to inquiries.

MESSRS. ASHWELL & NESBIT, LTD., heating engineers and ironfounders, of Barkby Lane, Leicester, intend to be ready for a largely increased export trade, and have in consequence issued their new lists of their "Runwell" semi-rotary wing pumps in four languages—English, French, Spanish, and Portuguese. Prior to the outbreak of war these particular pumps were imported from Germany, but every part of the "Runwell" pump is now exclusively manufactured at the works of the company at Leicester. The new list includes particulars of all accessories and spare parts.

TUNGSTEN.

CONSIDERABLE interest has been aroused by the details recently published as to the production of tungsten in this country from ores mined in our overseas Dominions. Tungsten is an essential ingredient of high-speed steel, and previous to the war Germany had practically a monopoly of the supply. This is no longer the case, a powerful British company having been formed to develop the industry for Imperial use exclusively. Tungsten is an exceedingly refractory substance with a melting-point higher than that of any other metal, its fusing temperature being about 3050° centigrade. It is that characteristic that makes it suitable for electric-lamp filaments. It is so hard that it will scratch glass, and it is unaffected by most acids, while it does not rust; and tungsten drawn wire is stronger than the strongest steel piano wire. Until the electric furnace made possible the production of pure tungsten from the ore it was not available for commercial purposes, and it is only within recent years that methods have been evolved for producing pure metallic tungsten, and more recently for drawing it into wire. Tungsten as ordinarily supplied is exceedingly brittle, and it was long considered impossible to make it ductile so that it might be drawn into a wire. However, untiring research in the Mazda Lamp Laboratories was eventually crowned with success, and the seemingly impossible became an established fact. In the early stages of the development of drawn tungsten wire its production was attended with the greatest difficulty. At first a piece of a few feet long was a wonder, but now a piece a mile long, and of absolute uniform diameter, is commonplace. A filament of drawn tungsten wire can now be made

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far more accurately and of more uniform quality than the old carbon filament. It is acknowledged that the discovery of the process of rendering tungsten ductile is one of the greatest scientific discoveries of recent times. Since tungsten has been available in ductile form its uses have greatly multiplied. It is coming into general use as a contact material for electrical apparatus, for special electrical furnaces and for other purposes where a high melting point is essential. Another interesting use for tungsten is for targets in X-ray tubes. The tungsten used for the light-giving filaments of Mazda wire lamps is mined in Cornwall, and the whole of the processes necessary, from extracting the metal from the ore to rendering it ductile and making it into continuous filaments for electric lamps, are carried out in the Mazda lamp factory in Rugby. Dealing more specifically with the use of tungsten for the filaments of incandescent electric lamps, it will be realised how great is the value of this improved form of filament when it is stated that from the latest Mazda half-watt type lamps an equal amount of light can be obtained by its use for a power consumption of approximately one-eighth than needed when carbon filaments were the only type available. The light given by the half-watt type of lamp with this filament is exceedingly brilliant, and closely resembles daylight. In view of the present need for economy the drawn tungsten wire filament for electric lamps is of national importance. It is interesting to note, by the way, that the supply of tungsten for filament making does not interfere with national requirements in connection with high-speed steel, &c., as the amount required by comparison is extremely small—a handful of the bright steel grey powder, with peculiar metallic lustre, being sufficient for the manufacture of a thousand or more electric-lamp filaments.

VARIETIES.

THE will has been proved of Mr. Herbert Hodkin, the head of the firm of Hodkin & Jones, Ltd., reinforced concrete specialists, Sheffield, amounting to £22,917.

MR. BANISTER F. FLETCHER, F.R.I.B.A., has been presented with his portrait in oils painted by Mr. Seymour Lucas in appreciation of his services for two years as Chairman of the Committee of the City of London School for Boys.

A MEMORIAL tablet to the late Edwin Austin Abbey, R.A., designed by Mr. Alfred Parsons, R.A., has been placed in the crypt of St. Paul's Cathedral, and will be unveiled by H.R.H. Princess Louise, Duchess of Argyll, on Tuesday, March 13, at 3 P.M.

A SERIOUS fire causing damage to the extent of over £20,000 broke out on Wednesday at the Clydebank bleaching and cloth finishing works of Messrs. Andrew Robertson & Son, Ltd.

THE memorial to be erected at Brighton to the memory of Indian soldiers who have fallen in the war will be from the designs of Mr. E. C. Henriques, a student of Indian architecture.

THE tender of Mr. J. Murphy, contractor, of 8 Pope's Quay, Cork, for the construction of filter beds at Parkgarrife reservoir, Monkstown (£1,425), has been accepted by the Cork Rural Council.

SIR BENJAMIN CHAPMAN BROWNE, the well-known engineer, and chairman of Hawthorn, Leslie & Co., engineers and shipbuilders, died at Newcastle last week. Sir Benjamin, who was seventy-eight, was twice Mayor of Newcastle, and was knighted in the Jubilee year.

OF the two methods of building to ensure dry external walls, the hollow cavity wall and the solid wall, for a recent town-planning scheme at Bradford the latter was deemed to be the most economical, and the results are reported as most satisfactory. The walls were rough casted with Pudlood cement.

AN interesting little function took place at the Liverpool Town Hall, when Mr. M. F. T. Turton, Housing Director of the Liverpool Corporation, was presented with a gold medallion. The inscription upon it is: "Presented to F. T. Turton, Esq., Housing Director, by the members of the Housing Committee as a token of their friendship and to commemorate his fifty years' service with the Corporation of Liverpool."

MR. BENJAMIN TURNER, a native of Armley, Leeds, retired architect, left about £10,000 to relatives, friends, and former servants; £5,000 upon trust for the benefit of maiden ladies in reduced circumstances "at the absolute discretion of my trustees"; £300 for the extension of the vestry of St. George's Church, Barnsley; £100 each to the Barnsley Naturalists' Society, Barnsley Tradesmen's Benevolent Institution, Beckett Hospital, Barnsley, the Leeds General Infirmary, the Pogmoor Mission, the Armley Nursing Association, the Barnsley Nursing Association, and £50 each to St. Bartholomew's Church, Armley, and Christ Church, Upper Armley.

THE "Journal Official" publishes a decree extending the powers of the department charged with the reconstruction of habitations in the localities ravaged by the war. There are about 1,000 French communes which have been liberated after having been more or less damaged by the invader. Statistics regarding 754 of those communes show that 46,263 houses have been partially or completely destroyed, not including 331 churches, 379 schools, 221 municipal buildings, and over 400 buildings or works of art. The remainder of the recovered communes have not been examined as they are near the front and sustain damage each day.

THE cost of the Channel Tunnel would have been saved many times over during the present war, if it had been in existence, in the carriage of men and munitions. This was a summary of the present position of the question put forward by Sir Edward Smith, who presided at a dinner of the Political Economy Circle of the National Liberal Club, in London, when Mr. Arthur Fell, M.P., addressed the members on the latest aspect of the matter. Mr. Fell drew a picture of a great terminus in South London, from which the trains through to Bagdad, Bombay, Madrid, and Petrograd would start. He claimed that the tunnel could be constructed, that it would pay, and that it would be of immense benefit to us and to our brave Allies, the French.

THE "Civil and Military Gazette" states that the Secretary of State has sanctioned the recommendations of the Government of India on the report of the Simla Improvement Committee which sat in 1914. The recommendations dealt with what were considered urgent sanitary improvements. The total cost of the scheme is Rs. 58 lakhs, but nearly Rs. 6 lakhs of this represents the cost of two new town halls. It is understood that the bulk of the expenditure will be deferred until after the war, but some more of the immediately urgent work, such as the extension of the water supply, is to be taken in hand at once. The Municipal Committee will contribute Rs. 17 lakhs of the total cost of the improvements. The remainder will be divided in proportion of two to one between the Imperial and the Punjab Governments.

MR. SHIPLEY N. BRAYSHAW, M.I.Mech.E., of Manchester, lecturing before the Sheffield Society of Engineers and Metallurgists, at Sheffield University (Applied Science Department), said that high-speed steel had not entirely replaced carbon steel. In considering the question of steel hardening, he drew attention to the problems of warping and distortion and the action of the hardening process on annealing. Even when steel was in a perfect condition, and the user used it correctly, a good deal still depended on the quenching. But although quenching was the shortest process in the manufacture and treatment of steel, it was of vital importance. The ideal liquid would be one which at a temperature of 100 degrees Fahr. would have a very powerful quenching action. Steel would harden at that temperature if it could be cooled rapidly. The difficulty of this was that boiling water created a "jacket" round the steel. The problem of using an effective and inexpensive quencher had been partially solved by his firm in Manchester, where they were now regularly using a substitute which had a freezing point of 135 degrees and a boiling point of over 800 degrees.

THE Huddersfield Town Council have adopted a resolution moved by Councillor Robson viewing with great concern the action of various munition firms in buying dwelling-houses and then giving notice to the tenants, and urging upon such concerns the desirability of using the powers they possess in the direction of building the houses which were so urgently needed. Councillor Robson said that householders were calling upon him and stating that seventeen houses in one street and eight in another had been purchased by a munitions firm, evidently for use by their own workpeople. The agent had informed them that they would shortly be receiving formal notice that they must look out for other houses. The case quoted was not an isolated one, and probably it was taking place in other districts of the town. The Housing Committee were doing their best to meet the shortage of houses, but they could not get the consent of the authorities to build, and this action of the firms was accentuating the housing problem, which in all conscience was bad enough. What made the matter worse was that the munitions firms were the only people who had the power to build houses.

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THE
Architect and Contract Reporter.
FRIDAY, MARCH 16, 1917.

EDITORIAL NOTICES.

The Editor will always be pleased to examine drawings or articles with a view to publication, but cannot be responsible for the safety of those sent, though every reasonable care will be taken. Contributors desiring payment should clearly state their wishes. No payment will be made until after publication, and a commission to prepare articles or drawings does not necessarily imply acceptance or approval.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

We have upon our staff a very eminent Barrister, who will be glad to answer in the columns of this paper any legal question that may be of interest to our readers. All letters must be addressed "Legal Adviser," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

TENDERS, ETC.

**** As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.*

COMPETITION OPEN.

OLDHAM.—April 24.—The Health Committee are prepared to receive competitive designs for a proposed Nurses' Home at Westhulme from architects practising within the borough. A plan of the site may be seen and instructions and suggestions for the guidance of architects may be obtained on application at the Borough Surveyor's Office. Premiums of £15, £10, and £5 respectively will be awarded to the authors of the designs which are selected as first, second and third in order of merit. Competitive drawings with sealed letter containing name and address of the author to be delivered under cover at the Borough Surveyor's Office not later than 24th April next, endorsed "Design for Nurses' Home."

CONTRACTS OPEN.

DEWSBURY.—April 2.—For construction of several water-closets or outbuildings, for the Health Committee. Mr. H. Ellis, town clerk, Town Hall, Dewsbury.

GOSFORTH.—March 19.—For painting exterior and interior of the War Hospital, Gosforth. Officer in Charge, War Hospital, Gosforth, Northumberland.

HEYWOOD.—March 31.—For the extension of the outfall house at Botany. Messrs. James Diggle & Son, Hind Hill Street, Heywood.

IRELAND.—March 31.—For erection of a number of semi-detached houses, for the Belfast branch of the Auctioneers' and Estate Agents' Institute of the United Kingdom. Mr. W. J. Walshe, 37 Royal Avenue, Belfast.

IRELAND.—April 2.—Tenders for erection of National school buildings at Toureenalour (Inchigeela), co. Cork. Office of Public Works, Dublin.

IRELAND.—April 2.—For erection of a brick office at Adelaide Station, near Belfast. Deposit £1 1s. Mr. T. Morrison, Amiens Street Terminus, Dublin.

LONDON.—The Commissioners of H.M. Works, &c., invite tenders for the execution of ordinary works and repairs to the buildings in their charge in the London districts for a period of one year from April 1, 1917. Maps showing the six districts may be seen, and copies of the lists of buildings, conditions of contract, schedules, memoranda of the amounts paid under the current contracts, and all particulars may be obtained on application to the Contracts Branch, Storey's Gate, S.W., on payment of £1 1s. deposit. Tenders may be submitted for one or more contracts, and alternative tenders for the acceptance of two or more contracts may also be submitted. Tenders must be delivered on a date to be subsequently announced, addressed to The Secretary, H.M. Office of Works, &c., Storey's Gate, London, S.W. (See Advertisement.)

ROTHWELL.—March 19.—For erection of lavatories, &c., to the Council offices, Rothwell, for the Rothwell Urban District Council. Mr. W. Dodgson, clerk, Rothwell, near Leeds.

ST. ISHMAELS (PEMBROKE).—March 29.—For alterations and additions at St. Ishmaels Council school house, for the Pembrokeshire Education Authority. Clerk to the Education Committee, County Education Offices, Haverfordwest.

SUTTON COLDFIELD.—March 19.—For supply of the following materials during year ending March 31, 1918, for the Corporation—viz.: (1) granite macadam; (2) limestone; (3) gravel and broken pebble stones; (4) Yorkshire kerb; (5) Rowley setts; (6) earthenware pipes; (7) cement and lime; (8) iron castings; (9) iron and steel; (10) timber; (11) hardware; (12) oils and paints (small quantities only); (13) bass brooms. Mr. W. A. H. Clarry, Council House, Sutton Coldfield.

TENDERS.

IRELAND.

For erection of new bathrooms, lavatories, &c., at the Louth County Infirmary. Mr. V. J. O'CONNELL, Earl Street, Dundalk, architect.

T. MCDONALD & SONS, Castle Road, Dundalk (*accepted*) £1,540 0 0

WALES.

For electrical fittings for cookery and laundry at the Cmybwrla Council School, for the Swansea Town Council.

THOMAS & EVANS (*accepted*) . . £145 0 0

WORTHING.

For painting, &c., on the parade and in the parks, for the Worthing Town Council.

F. SANDELL & SONS (*accepted*) . . . £362 0 0

THE Finance Committee of the Dudley Corporation, in a report on the subject of town planning, state that the cost of a scheme for the unbuilt-upon land in the borough would be approximately £700 to £1,000, exclusive of any land and street works which may be found necessary.

THE death occurred at Parkstone, Dorset, on the 10th inst., of Mr. Horace Wragg, director of Thomas Wragg & Son, pipe manufacturers, of Swadlincote, Burton-on-Trent. His father died a fortnight ago, shortly after Mrs. Wragg's death, and two brothers, Major and Lieutenant Wragg, were killed in France recently.

THE late Lord Ashcombe (George Cubitt) was the eldest son of Mr. Thomas Cubitt, and was born on June 4, 1828. His father was the famous English builder whose name is associated with some of the most impressive houses in London, and after whose designs Osborne House was built for Queen Victoria. Lord Ashcombe took a prominent part in Church affairs, and from 1874 to 1879 filled the unpaid post of Second Church Estates Commissioner. Lord Ashcombe married in 1853 Laura, daughter of the Rev. James Joyce, Vicar of Dorking.

THE Minister of Labour has appointed the following to be a committee to advise and assist the Employment Department of the Ministry upon matters affecting workmen in the building trades in connection with the working of employment exchanges: Messrs. J. Batchelor, operative bricklayers; J. Bradshaw, operative stonemasons; F. T. Chandler, amalgamated carpenters and joiners; J. H. Edmiston, operative plumbers; Charles Ince, labourers; Kinniburgh, electricians; T. H. Otley, operative plasterers; Parsonage, amalgamated painters; J. Vickers, heating engineers; W. Wentworth, wood cutting machinists; and A. Wilson, operative slaters. It is proposed in due course to take steps with a view to forming a corresponding committee of employers.

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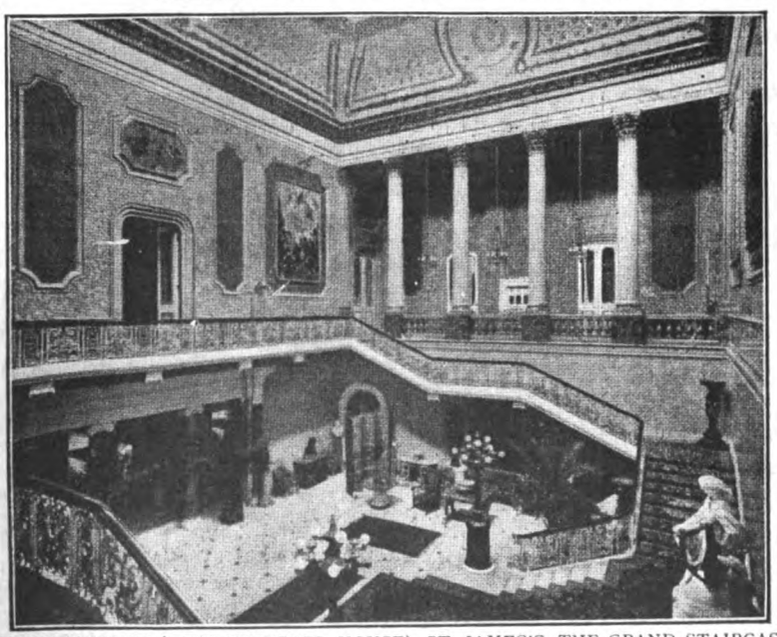
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NATIONAL ASSOCIATION MASTER HOUSE PAINTERS OF ENGLAND AND WALES. INCORPORATED.

At the quarterly Council meeting, held at the Town Hall, Salford, February 22, the Secretary submitted the following report on the proposal to affiliate with the Confederated National Association of Master Plasterers, Plumbers and Slaters:—

The facts which have led up to the proposal to join this Federation are as follows:—

In October last a circular was issued by the N.W. Federation of Building Trades Employers to many of our local Associations inviting them to confer with a view to the establishment of "One Association" (for the building trades) in each district, apparently to the exclusion of such separate trade organisations as your own. The Propaganda Sub-Committee considered the matter and sent out a counter circular. It was also decided to approach the Plumbers' Institute, with a view to taking common action, and subsequently a deputation consisting of Messrs. Butterworth, Foster, J. H. Cantrill and your secretary, met the Executive of the Plumbers' Institute at Rochdale. This deputation found the plumbers in strong agreement with their views of the circular referred to above, and also on the question of trade organisation.

They contended that the sub-contracting trades having organised in the first instance as separate trades, should organise through their National Associations to form a Federation of Sub-Contractors. It was insisted that the interests of the sub-contractors were often opposed to those of the general contractors, and that by affiliating with the builders' organisations local associations are merely providing a means for their own exploitation, and that by combining as sub-contractors, master painters would be better prepared to combat such coercive methods as the inter-trading clause exemplifies.

On January 8 Mr. J. H. Cantrill and your secretary attended a meeting of the Specialists' and Sub-Contractors' Joint Committee in London. After this meeting your deputation had a conversation with Mr. Cox and Mr. Allinson of the Plumbers' Institute, who were present as representatives of the Confederated National Association of Plumbers, Plasterers and Slaters.

Your deputation reached the conclusion that your interests will be best served by joining this Confederation, whose interests are much akin to your own, and who have already gone far towards a satisfactory agreement with the builders.

The appended agreement has been approved by the Institute of Builders and the National Federation of Building Trades Employers, with the exception of Clause 14, which is being re-drafted with a view to rendering it acceptable to all parties concerned. The Confederation has been working for three years to secure the interests of sub-contractors. It attempted in the first place to get the R.I.B.A. to agree to the principle of direct tendering, but this the architects after consideration refused, on the ground that they must have one control, and this decision they would not reconsider. The Confederation then approached the Builders' Organisations. They found that while these were suspicious of action taken on behalf of the specialists appointed by third parties, they admit the claim of the sub-contractors to greater security.

Negotiations were then opened which resulted in the drafting of the form of sub-contract referred to above.

It should be understood that if you elect to join the Federation you will not necessarily become thereby a party to everything in the agreement to which reference has been made; you will, however, have a voice in the final shaping of that agreement.

The meeting, after a brief discussion, in which Messrs. Brook-Jackson (Dewsbury), Foster (Burnley), and J. E. Butterworth (Oldham), took part, adopted the report and the recommendation it contained.

The Secretary also submitted the following report *re* Joint Committee.

In December last your Secretary received the following letter from the Secretary of the Operatives' Society:—

Dear Sir,—At their meeting on November 26 my Executive Committee discussed the present situation with regard to the abnormal conditions obtaining owing to the war. For instance, the supply of labour, the increased cost of living, the restriction on building trade operations, and also demands for advances in wages in the shape of war bonuses. My Executive Committee were of the opinion that a discussion on these questions with the Council of your Association would be productive of good results. It would at least give an opportunity of considering the views held by both sides on these matters, to the mutual advantage of both. I am requested to ask if your Council will agree to meet my Executive Committee at an early date, for a discussion on the above questions. I shall be pleased if you will bring this matter before your Council and trusting to receive a favourable reply.—Yours faithfully,

J. Parsonage, General Secretary.

After consultation with the President a joint meeting was arranged at the Salford Town Hall between the Executive Committee of your Association and the organisation of the operatives. At that meeting the following resolutions were passed:—

Agreement re Wages.

That the existence of agreements respecting wages should not prevent the discussion of war bonuses.

Government Action.

That in view of the Government's proposals for the mobilisation of labour this joint meeting urges the Director-General of National Service to have regard to the minimum requirements of private trade and the position of the older operatives with regard thereto, and respectfully suggests that the Executives representing the trade be consulted as to the best means of accomplishing this end.

Permanent Joint Committee.

That the Executive Committee of the National Association appreciates the spirit in which they have been approached and trusts that this meeting may be the forerunner of a permanent Committee to consider mutual interests.

The meeting was adjourned to January 25. Your Executive then met separately on January 16, and the following resolution was passed:—

A Joint Committee.

That it be a recommendation to the Council that a joint committee be set up consisting of equal numbers of employers and operatives with a view to promoting joint action in matters of importance to the trade.

It was recommended also that the joint committee should discuss—

1. The position of demobilised apprentices after the war.
2. The question of partly disabled soldier journeymen.
3. The supply, status, payment, and education of apprentices.

At the adjourned joint meeting held at Salford Town Hall, on January 25, the following resolutions were passed:—

Joint Committee.

That a Joint Advisory Committee be set up composed of seven members of each side and the secretaries, that the meetings be held quarterly and that the chair be occupied by representatives of each side alternately, and further, that it be a recommendation that local joint committees be established on similar lines.

Soldier Apprentices.

That this meeting accepts as a basis of discussion the principles laid down in a memorandum on this subject issued by the Joint Committee appointed by the building trades' organisations to deal with this matter, and that the details be adjusted by a small sub-committee.

The questions of disabled men and of apprenticeship were also referred to this Committee. The Sub-Com-

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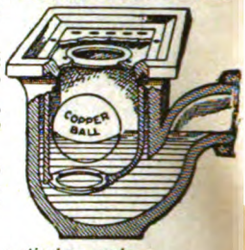
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mittee has met since, and has drafted terms of reference for the Joint Committee.

The Sub-Committee has also prepared a draft of the proposals *re* demobilised apprentices, and the recommendations *re* disabled men.

The Secretary then read the proposed terms of reference, and the proposals *re* apprentices.

Mr. Foster spoke at length in support of the proposal to ratify the formation of the Committee, and emphasised the waste of energy and mental force which had always resulted from the policy of separate approach to the same problems.

Mr. Butterworth continued the discussion, making clear certain points which seemed to be in doubt.

Mr. Jackson (Manchester) said he and many others would like more specific information on certain points.

Finally it was resolved "That the report be approved, and that the proposed terms of reference, and the proposals *re* apprentices be circulated among the members."

PATENT SPECIFICATIONS.

Selected by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

No. 102,767.—Nov. 25, 1915.—Gustave Strauven, architect, 123 Fentiman Road, Vauxhall, S.W. Walls, and blocks for same.

100,069.—Feb. 5, 1916 (dated under International Convention Feb. 6, 1915).—Patent Corporation, Ltd., 10 Lord Street, Liverpool. Manufacture of lead monoxide.

101,289.—Aug. 20, 1915.—W. T. Blaney, 439 Water Street, Peterboro', Ontario. Street-sweeping machines.

103,839.—Feb. 1, 1916.—John Davies, 62 and 63 Regent Road, Liverpool, N., and W. H. Jones, 11 Leasowe Avenue, Wallasey. Manufacture of heat-insulating chambers, walls, floors, and ceilings.

103,840.—Feb. 2, 1916.—A. G. Coffin, 9 Lancashire Court, New Bond Street, W. Apparatus for heating and circulating water.

103,843.—Feb. 4, 1916.—William Russell, Uralite House, Higham, near Rochester, Kent. Manufacture of asbestos cement sheeting and tiles and similar products.

103,853.—Feb. 10, 1910.—W. H. Becket, 15 The Square, Carshalton, Surrey. Gas-heated cooking stoves.

103,876.—Feb. 17, 1916.—P. F. Rose, the Midland Engineering Supply Company, Midgate Chambers, Peterborough; and R. R. R. Joyce, Bridge End, Peterborough. Portable work benches.

103,886.—Feb. 28, 1916.—Peter Fyfe, 23 Montrose Street, Glasgow. Buildings constructed or faced with concrete slabs.

103,889.—Feb. 29, 1916.—Thomas Shepherd, Skye Lodge, Erie Street, Cotteslow, Western Australia. Combined lamp and shade holder.

103,898.—March 20, 1916.—C. A. Gould, 125 High Holborn, W.C. Flush cistern and the like handle.

103,899.—March 21, 1916.—Lewis Marshall, Canal Boiler Works, Manchester Road, Huddersfield. Cylindrical domestic hot-water supply boilers.

103,919.—May 5, 1916.—John Armstrong, 5 Victoria Street, S.W. Gas cooking-stoves or apparatus.

103,932.—May 29, 1916.—J. B. Hastings, 273 Warwards Lane, Selly Park, Birmingham; and F. M. Barber, 12 Persehouse Street, Walsall. Means for fixing advertising plates to walls.

103,949.—Aug. 3, 1916.—Igranic Electric Company, Ltd., 147 Queen Victoria Street, E.C. (communicated by the Cutler-Hammer Manufacturing Company, Milwaukee, Wisconsin). Control mechanism for the doors of lifts.

101,538.—Aug. 29, 1916 (dated under International Convention Sept. 23, 1915).—S. J. Frank, 41 Liberty Street, New York, U.S.A. Lift, warehouse, and like doors.

103,588.—May 9, 1916.—S. P. Bryan, 45 Lea Road, Wolverhampton. Manufacture of metallic brackets.

103,492.—Jan. 15, 1916.—E. L. Pease, Hurworth Moor, Darlington. Gilled heat interchanging apparatus, including radiators and the like.

103,518.—Jan. 27, 1916.—Thos. Cracknell, 11 Dewey Street, Mitcham Road, Tooting, S.W. Galleries for gas and electric lamps.

103,559.—March 24, 1916.—F. W. Wilson, Kempe Road, Kensal Rise, W.; and the Howard Smith Engineering Company, Ltd., 2 Walbrook, E.C. Tubular air heaters, condensers, and the like.

103,566.—April 5, 1916.—Frank Barber, 195 Walkley Lane, Sheffield. Apparatus and appliances for filtering and purifying air.

103,573.—April 7, 1916.—H. E. Campbell, 8 West 40th Street, New York. Windows, sashes, and the like.

103,575.—April 11, 1916.—W. C. Wise, 24 Stamford Street, S.E. Trough-shaped reflectors.

103,582.—May 1, 1916.—John Bellingham, "Age" Buildings, Masterton, Wellington, New Zealand. Concrete building slabs and moulds therefor, and walls comprising such slabs.

103,592.—May 17, 1916.—Edward Moulds, Elm Cottage, 20 Lime Grove, Longsight, Manchester. Vernier drilling gauge.

103,538.—Feb. 4, 1916.—J. B. Meunier, 43 rue de la Gare, Bourges, France. Floors.

103,546.—Feb. 23, 1916.—Ransomes & Rapier, Ltd., and W. J. Bowtell, 32 Victoria Street, S.W. Cranes.

103,602.—June 21, 1916.—W. B. Kettlewell, 13 Trentham Row, Dewsbury Road, Leeds. Joiners' cramps and the like.

103,678 (Jan. 31, 1916).—F. J. Fox, 13 Ridge Road, Letchworth, Herts., and G. J. Fox, 7 Parkholme Road, Dalston. Valve for acetylene gas generators.

103,446 (Aug. 8, 1916).—James Patrick, 5 Church Street, Eccles, near Manchester. Bracket stop for use with ladders or like supports.

103,176 (903, Jan. 20, 1916).—Chas. Walford, 86 Drayton Road, King's Heath, Birmingham. Method for producing curbs or fenders.

103,403 (May 3, 1916).—John Plummer, Brancepeth House, and G. B. Burrows, Brancepeth Terrace, Willington, Durham. Electrical apparatus for indicating the depths of liquids in tanks or other vessels.

103,765 (June 30, 1916).—J. K. Horsburgh, Mill House, Linwood, Renfrewshire. Ventilator.

103,775 (Aug. 2, 1916).—J. C. G. Sperni and L. S. Burt, Salisbury House, E.C. Plastic compositions or materials and slabs and the like for building and other purposes.

103,806 (Dec. 15, 1916).—Edward Clary, 43 Ardgowan Street, Port Glasgow. Valve coupling for fluid pressure pipe systems.

103,741 (April 19, 1916).—Sir W. G. Armstrong, Whitworth & Co., Ltd., and Charles Wale, 8 Great George Street, S.W. Doors or closures especially applicable for airship sheds.

103,794 (Oct. 7, 1916).—Samuel Nelson, 16 Lichfield Avenue, Bloomfield, Belfast. Reinforced concrete or artificial stone balance and like weights.

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MR. JAMES CROSSLAND, who has this week been gazetted temporary Hon. Lieutenant and Quartermaster of the 13th Battalion the Lancashire Volunteer Regiment, has shown a very keen interest in organising the new force in the county town of Lancaster. He has been for upwards of twenty-three years associated with Mr. T. H. Mawson, the well-known town planner and authority upon civic design, and directed his London office for some time. Just before war broke out it had been arranged he should proceed to Athens to assist his principal in the epoch-making scheme of reconstruction for the King of Greece and the Hellenic Government. Mr. Crossland was for a short time with Mr. Thomas Adams, head of the Town-planning Department of the Local Government Board, who now occupies a similar post under the Canadian Government.

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VARIETIES.

IT has been proposed by the rector and churchwardens of St. Anne's, Soho, to erect in the church a permanent memorial of the work of Dr. E. H. Thorne as organist and choirmaster for twenty-five years.

AT the annual meeting of the Glasgow Institute of Architects, over which Mr. John Watson, F.R.I.B.A., presided, it was reported that the roll now included 107 fellows, 67 associate members, and 37 lay and student members.

A GUIDE to the Registration of Business Names Act is a valuable little work written in a specially practical manner by Mr. Kenneth Brown, solicitor, and issued at the charge of 1s. by Sir Isaac Pitman & Sons, Ltd., 1 Amen Corner, London, E.C.

SIR CHARLES HOLCROFT died at Kingswinford, Stourbridge, in his eighty-sixth year. He was a large Staffordshire ironmaster and a munificent donor to the Birmingham University, contributing £50,000 as an anonymous gift and £50,000 in his own name. He was an honorary LL.D. of the University. Sir Charles, who was unmarried, was created a Baronet in 1905. There is no heir to the baronetcy.

THE death has occurred at his home at Monkseaton of Mr. J. C. Midgley, acting City Surveyor for Newcastle. Mr. Midgley had been with Newcastle Corporation for about thirty years, most of the time as building inspector, and was appointed acting City Surveyor only a few weeks ago, when Mr. Steele, the City Surveyor, went to France on roadmaking work.

THE tone of the Liverpool and district real estate mart remains healthy. Among the encouraging features are the sales of villa residences, and it is evident that there will be less of these houses standing empty in future. Builders are proposing to form themselves into a national association. This would have for its object the working together of the Government, the City and County Councils, the estate agents, and the builders for large schemes of land acquirement, a town-planning in which both small and large houses would benefit, and a systematic housing extension leading to the tenants becoming owners.

A MOVEMENT has been inaugurated amongst the manufacturers of firebricks and refractory materials to develop the industry on more scientific lines, in order to meet German competition after the war. There is an ever-increasing demand for fireclay goods for steel furnaces, glass works, coke and by-product ovens, &c., and it becomes increasingly necessary that the most careful and expert attention should be given to the production of bricks and blocks for refractory purposes in different grades, adapted to the various kinds of furnaces, &c., for which they are required.

WHEN Canaletto visited England in 1746, he found time to paint many historic buildings, and his "Eton College" is in the National Gallery. Attributed to him, but more probably by a promising pupil, was a large and very interesting picture of Leicester Square, sold at Christie's recently for 75 guineas. Hopes are entertained that this will find its way to the London Museum, for it gives a remarkable view of the famous house of the Sidneys—Leicester House—from which the fields and square took their name. The house then covered an extensive site on the southern side, now taken up partly by the Dental Hospital and the National Society for the Prevention of Cruelty to Children.

AT a general meeting of the Midland Institute of Mining, Civil, and Mechanical Engineers, a paper by Mr. Thomas Blandford, B.Sc., on "The Cementation Process as Applied to Mining" (Francois system) was read. Amongst the cases in which the cementation process has been successfully applied, it was stated, are shaft sinking or level driving, underground dams, underground fires, defective boreholes, and defective shaft lining. As applied to shaft-sinking cementation consists of a thorough treatment of the measures through which it is desired to sink by an injection of cement into all the existing fissures or cracks in the ground previous to the commencement of actual sinking operations, thus rendering the measures practically watertight. The cementation can be applied satisfactorily in practically all kinds of rock, but is of no value in the case of surface quicksand.

THE apparently favourable attitude adopted by the Local Government Board towards the Worthing Town Council's after-war scheme for the erection of workmen's dwellings at an approximate cost of £15,000, and the desire of the Board to expedite it as far as circumstances will permit, has come somewhat as a surprise to some members of the Council, but not to all. Present indications seem to point to the fact that when Worthing is ready after the war to embark on the building of workmen's dwellings, not very much difficulty will be encountered in securing the necessary sanction. It may even be possible so to advance the preliminary negotiations, preparation of plans, &c., that only the formal approval of the Local Government Board in the matter of the loan will be needed when the time is ripe for building.

THE Rector and churchwardens of Windermere Parish Church have applied for a faculty to carry out considerable alterations, including the building of a war memorial chapel at the north-east end. At the Consistory Court the Rector said Sir William Forwood, Bromborough Hall, Cheshire, had offered to build this memorial chapel at a cost of £2,500, and to erect a new clergy vestry. The chapel was to contain six memorial tablets to men who had served in the war, and three stained-glass windows, one given by Mr. and Mrs. Lingard, who had lost a son in Gallipoli, and another by Mr. and Mrs. J. T. Bownass, in memory of their son, who had lost his life in France. Chancellor Prescott said this was a most generous offer by Sir William Forwood, and if well carried out, it would be a touching memorial to those who had fallen in the war. But if the work was done it could not be undone, and he should reserve his final judgment until the next Court. Meanwhile he should get the advice of those who were really experts in architectural and archæological matters.

THE eighty-fourth annual report of the Commissioners of Public Works in Ireland for the year 1915-16 shows that the war has increasingly affected every branch of the Board's business by necessitating a reduction in the provision for expenditure and by raising the cost of supplies. As regards new works, the provision in the estimates 1915-16 was limited to works of absolute necessity, and the expenditure on maintenance has been kept to the lowest figure compatible with due care for the property in the Board's charge. The suspension of loans, except where satisfactory evidence is produced that the work cannot be postponed without direct danger to the public health, has practically reduced the Board's loan operations to the financing of loans previously sanctioned. The financial position arising out of the war necessitated a temporary postponement of new undertakings, and the Treasury accordingly gave instructions that, save with specific Treasury sanction, grants were not to be issued except in cases where contracts had already been entered into by the responsible authorities. Thirty-four new schools and thirteen cases of improvements were completed directly by the Board during the period under report.

TRADE NOTES.

WE learn that Mr. F. J. L. Robertson, the well-known secretary of Claridge's Patent Asphalte Co., Ltd., has joined the R.N.V.R. The whole of the company's pre-war staff has now joined the Forces, and the directors are to be congratulated on their efforts to "carry on" under such difficulties. We wish Mr. Robertson every luck and the company continued prosperity.

CEMENT finishings to concrete flat roofs are being increasingly adopted in many parts of the world. Perhaps one reason for their being favourably regarded is because experts are not necessary to lay them over the reinforced concrete. We learn that the roof to the sergeants' quarters at Charbagh, India, has been given a 1½-in. Pudloed cement topping, and the garrison engineer, Lucknow, has expressed his satisfaction with same. In hot climates like India cement toppings to roofs are unaffected by the intense heat when they are covered with gravel, coke breeze, small shells, or other loose materials to counteract the fierce rays of the sun.

MESSRS. S. W. FRANCIS & CO., LTD., of Gray's Inn Road, W.C., established 1864, have just issued a well-printed leaflet which they state "replaces our usual catalogue, and we ask our customers to be so good as to refer to the last edition of the latter issued in 1915 should occasion arise, as, although prices are temporarily withdrawn, the other information contained therein holds good." Messrs. Francis enjoy a well-earned reputation for the manufactures they supply, shop fronts, collapsible steel gates, signs, wood letters, plate-glass facias and revolving shutters in both wood and steel. The little pamphlet now issued deals particularly with steel and wood rolling shutters, and shows illustrations of almost every possible variety.

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THE
Architect and Contract Reporter.
FRIDAY, MARCH 23, 1917.

EDITORIAL NOTICES.

The Editor will always be pleased to examine drawings or articles with a view to publication, but cannot be responsible for the safety of those sent, though every reasonable care will be taken. Contributors desiring payment should clearly state their wishes. No payment will be made until after publication, and a commission to prepare articles or drawings does not necessarily imply acceptance or approval.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

PAPER RESTRICTIONS.

We are compelled in the national interests to economise in the use of paper. Many journals have in consequence been compelled to refuse all returns from the trade. We are endeavouring to obviate such a course, but would ask our readers to assist us by placing a firm order with their newsagent or bookstall clerk for delivery, or we are prepared to forward copies by post from these Offices, should there be any difficulty in obtaining a supply.

COMPETITION OPEN.

OLDHAM.—April 24.—The Health Committee are prepared to receive competitive designs for a proposed Nurses' Home at Westhulme from architects practising within the borough. A plan of the site may be seen and instructions and suggestions for the guidance of architects may be obtained on application at the Borough Surveyor's Office. Premiums of £15, £10, and £5 respectively will be awarded to the authors of the designs which are selected as first, second and third in order of merit. Competitive drawings with sealed letter containing name and address of the author to be delivered under cover at the Borough Surveyor's Office not later than 24th April next, endorsed "Design for Nurses' Home."

CONTRACTS OPEN.

CALDBECK (WIGTON).—March 27.—For alteration to Caldbeck Church. Mr. J. H. Martindale, F.R.I.B.A., architect, Carlisle.

DEWSBURY.—April 2.—For construction of several water-closets or outbuildings, for the Health Committee. Mr. H. Ellis, town clerk, Town Hall, Dewsbury.

HEYWOOD.—March 31.—For the extension of the outfall house at Botany. Messrs. James Diggle & Son, Hind Hill Street, Heywood.

IRELAND.—March 31.—For erection of a number of semi-detached houses, for the Belfast branch of the Auctioneers' and Estate Agents' Institute of the United Kingdom. Mr. W. J. Walshe, 37 Royal Avenue, Belfast.

IRELAND.—April 2.—Tenders for erection of National school buildings at Toureenalour (Inchigeela), co. Cork. Office of Public Works, Dublin.

IRELAND.—April 2.—For erection of a brick office at Adelaide Station, near Belfast. Deposit £1 1*s*. Mr. T. Morrison, Amiens Street Terminus, Dublin.

KIRKCALDY.—March 30.—For internal alterations at Philp Hall, Links Street, for the Town Council. Mr. W. L. Macindoe, town clerk, Kirkcaldy.

LONDON.—The Commissioners of H.M. Works, &c., invite tenders for the execution of ordinary works and repairs to the buildings in their charge in the London districts for a period of one year from April 1, 1917. Maps showing the six districts may be seen, and copies of the lists of buildings, conditions of contract, schedules, memoranda of the amounts paid under the current contracts, and all particulars may be obtained on application to the Contracts Branch, Storey's Gate, S.W., on payment of £1 1*s*. deposit. Tenders may be submitted for one or more contracts, and alternative tenders for the acceptance of two or more contracts may also be submitted. Tenders must be delivered on a date to be subsequently announced, addressed to The Secretary, H.M. Office of Works, &c., Storey's Gate, London, S.W. (See Advertisement.)

ST. ISHMAELS (PEMBROKE).—March 29.—For alterations and additions at St. Ishmaels Council school house, for the Pembrokeshire Education Authority. Clerk to the Education Committee, County Education Offices, Haverfordwest.

TENDERS.

CARDIFF.

For an extension, in reinforced concrete, of the Hayes sub-station, for the Corporation.

E. Turner & Sons, Ltd.	£1,697 14 9
E. Williams	1,568 6 2
E. R. Evans & Bros.	1,546 0 0
TUCKER BROS., 181-3 Broadway (*accepted*)	1,484 17 9

DERBY.

For power station extensions, for the Town Council Electricity Committee.

E. Morley & Sons	£12,150 0 0

MORL

For painting interior of the Cross Hall Council School. Mr. F. TURNER, B.Sc., A.M.I.C.E., borough engineer.

H. ATKINSON, Albert Road (*accepted*)	£162 3 0

RICHMOND (YORKS.).

For the provision of an additional exit and lavatory accommodation at Richmond Town Hall. Mr. H. W. MARSDEN, borough surveyor.

M. METCALFE, Richmond (*accepted*)	£104 5 0

THE WILLESDEN PAPER AND CANVAS WORKS.

"E'EN in our ashes live their wonted fires." And so it is that the disaster of to-day may prove the benefactor of to-morrow. For the conflagration which destroyed these works in Old Oak Lane, Acton, a few months ago has brought to fruition an improved block of buildings for the production of the "Willesden" fabric. Properly enough in these days of big and small economies, the proprietors have devoted their funds to purely practical purposes, resisting any inclination to indulge in art; utility is in fact the key-note throughout. We were interested to observe the process of converting the plain canvas into the finished article so well-known to architects, builders, and the public in general; if the fumes of the ammonia were at all overwhelming (and they were so, without doubt) we willingly tolerated this for the time spent on the works. There should be a big demand for Willesden paper and canvas at this present time, and there is every evidence that the Company have every facility in their new works for dealing with an extensive output.

WE have been requested by the Director of Timber Supplies, War Office, Caxton House, Westminster, to call special attention to the announcement on page 14 relating to the new rule for a monthly census of stocks of timber held by all timber merchants and large consumers. Full particulars as to the timber which comes under this new rule will be gathered from a perusal of the announcement.

THE recommendations by the Special Committee of Glasgow Corporation appointed in connection with the housing of the poorer and working classes and general town improvement were submitted at a meeting of the Corporation on the 15th inst. Mr. Hunter drew attention to the selection of Mr. John Keppie and Mr. John Watson as architects to act in conjunction with the Corporation officials, and expressed the view that it would have been better if a fixed salary had been arranged, instead of payment on a time basis. The Lord Provost said he admitted that there was a difficulty in checking the time devoted to the work by the two architects and their assistants. He thought, however, that they could very well trust to the honour of these gentlemen. Mr. Hunter pointed out that if a working man was engaged at 8*d*. or 9*d*. an hour his employer invariably took great care to obtain a check upon the time he worked. Mr. P. G. Stewart characterised the arrangement as most unbusinesslike. As the matter had been remitted to the committee with powers it was ruled that there could be no amendment to the proposal.

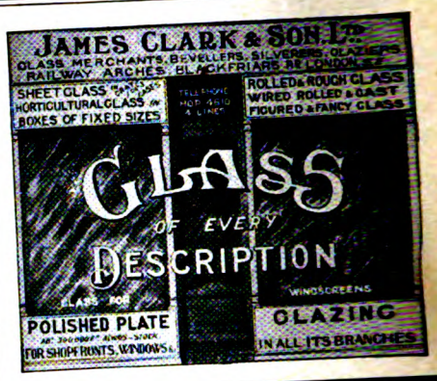
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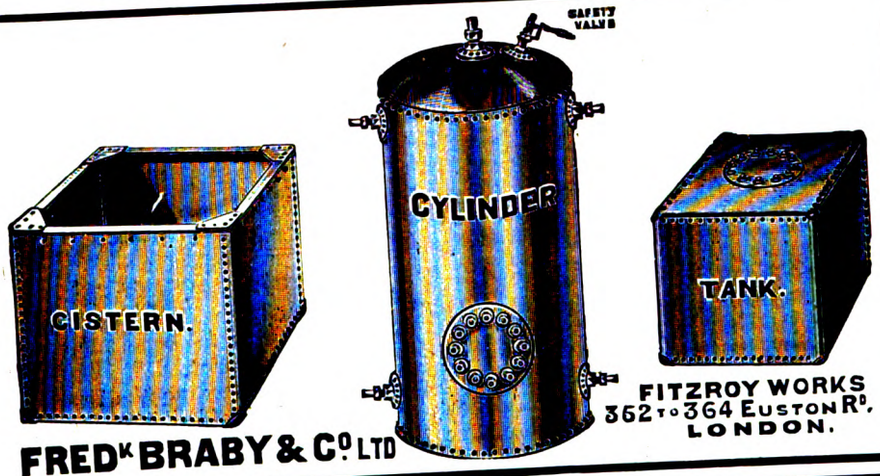
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THE LATE MR. W. H. WARD.

THE "Birmingham Post" gives the following obituary notice:—

The death occurred on the 15th inst. of Mr. William Henry Ward, an architect, who for more than fifty years practised in Birmingham. Born at Hamilton, Scotland, in 1844, and educated at Glasgow and Hereford, Mr. Ward was articled to the late Mr. James Cranston, with whom he saw a large amount of important work, notably in church architecture, and gained a thorough knowledge of the routine of his profession. He came to Birmingham in 1865, and built up a large practice, which he carried on until the early part of 1914, when he retired in favour of his son, who for a long period had been his partner. Soon afterwards war broke out, and Mr. Ward, junior, who was an officer in the Territorial Force, was called up for service. His father then returned to the office in Paradise Street, and carried on the business until the recent illness which resulted in his death.

Mr. Ward achieved a great amount of success in his profession. He specialised in public work, and designed the Dudley Road Infirmary, the City Sanatorium, in Yardley Road, as well as the one at Salterley Grange, Cheltenham, and also the City Hospital at Little Bromwich. Among other important buildings which were erected to his designs was the Great Western Arcade, the Grand Theatre, the Union Offices in Edmund Street, Lincoln's Inn Buildings, and several of the principal hotels and restaurants. His work was not confined to Birmingham, for he was the architect of infirmaries, workhouses, and sanatoria at Brentford, Bradford, Doncaster, Sheffield, Wolverhampton, Alcester, Solihull, Nottingham, Chesterfield, and many other places. He restored Maxstoke Castle for the late Sir Charles Featherstone Dilke, parts of Warwick Castle for the late Earl of Warwick, and a number of churches were built or restored in accordance with the plans he prepared, including part of St. Mary's, Handsworth, on which occasion he presented to the church the stained glass window in the tower in 1878. He built the public markets in Mexico. Mr. Ward was highly respected by his professional brethren, and also in social circles. A Freemason, he was a Past Provincial Grand Officer, and a Past Master of St. James's Lodge. Fond of sport from his youth, he had few equals as a shot. He was also a keen cricketer, and years ago on several occasions was in the team of All England Twenty-two's, and as a young man was the best heavyweight boxer in the Midlands. Mr. Ward, who was in his 73rd year, leaves a widow, a son, and two daughters.

BRITISH PATENT SPECIFICATION.

Selected by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the completed specification.

No. 103,681 (Jan. 31, 1916).—Walter Wilson, 51 Elliot Street, Dunfermline. Reinforced concrete blocks, slabs, beams, and the like.—This invention relates to slabs, blocks, beams, and the like for reinforced concrete structures of the kind formed of previously made slabs, beams, &c., in which the reinforcement of the concrete blocks, beams, joists, slabs, &c., consists of one or more wire ropes or cables tightened and held under tension. In this invention the blocks, slabs, &c., are each cast, or formed, in a mould, having the reinforcing, or main reinforcing, wire cable or cables secured therein so as to be near the edges of the finished block or slab, which is made more or less hollow at the centre, constituted by a thin web or part, whilst the sides or edges are thickened to such extent as may be found desirable or necessary to properly cover and embed the reinforcing, or main reinforcing, cable or cables. These thickened edges constitute reinforced marginal ribs or flanges, which give great strength to the blocks or slabs, while serving as means whereby they can be readily secured together by means of bolts or otherwise. With these blocks or slabs a building can be constructed, such as a dwelling-house, with little or no wood in its structure, and without bricks, stonework, or iron beams, with the result that the construction is not only facilitated and expedited, but the cost is very much reduced, and a better and stronger building is produced. Fig. 1 shows the mould, or frame, in which the reinforced block is made in the yard; a portion of the frame is broken away at the centre. Fig. 2 is a fragmentary section of the frame, taken on the line *x*, *x*, fig. 1. This section is made to an enlarged scale so as to show the parts more clearly. Figs. 3, 4, and 5 are respectively a side elevation, a plan, and a section (the section being taken on the line *y*, *y*, fig. 4) of the reinforced concrete slab, or block, after it has been moulded, the reinforcement being indicated by dotted lines. Fig. 6 is a fragmentary section of the block, or slab, taken on the line *z*, *z*, fig. 4. The metal or other foundation I, upon which is moulded or fitted a die-block 3 is of a shape suitable to give the desired hollow formation to the finished slab. Preferably this die-block is made of cement. Round about this block, and at a suitable distance therefrom, is fitted a rectangular wood or metal frame 2, which constitutes the sides and ends of the mould. Fixed into the foundation are four upright pins or anchors 4, one being located near each corner of the frame. These pins can be held in sockets in the foundation I, or be otherwise rigidly supported. Upon these pins is a metal sleeve 5 (see fig. 2) of the

Fig. 1.

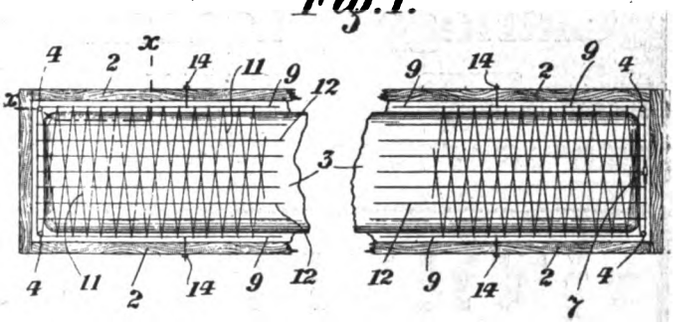
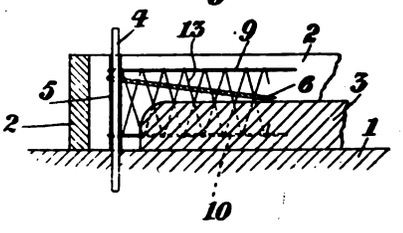


Fig. 2.



same height as the frame 2, although the pins 4 may project above it. A length of main wire rope or cable (indicated at 6, figs. 2 and 3) is passed round about the four pins and outside the sleeves thereof, the ends being brought together and secured by a screw coupling 7, or by other means. The cable, after being strained, is at the centre bent downwards, and further tightened as shown at fig. 3, by means of cross tubes 8, weighted down by means of heavy weights, applied thereto or forced down by means of screws suitably applied, the idea being to stretch the cable 6 and maintain it under strong tension. About the sleeves of the uprights is an upper wire rope 9, and a corresponding lower wire rope 10, these ropes being each joined by couplings or the like so as to be "endless," and being laid parallel to one another and to the top of the frame, as shown clearly at fig. 2, and thereafter strained tight. The sides of the wire rope 9 are braced together by means of diagonally-arranged cross wires 11, which are pulled tight and then tied in position, and these constitute a subsidiary reinforcement for the thin central part of the slab. The ropes 9 and 10 are braced together

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Fig. 3.

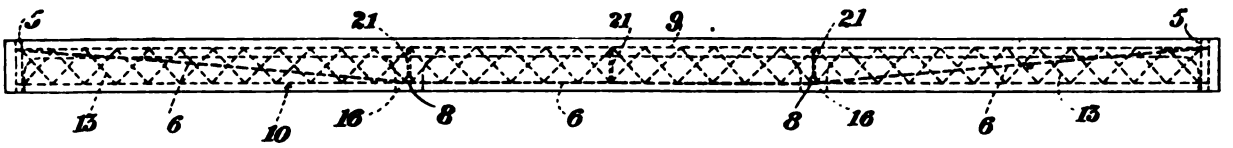


Fig. 4.

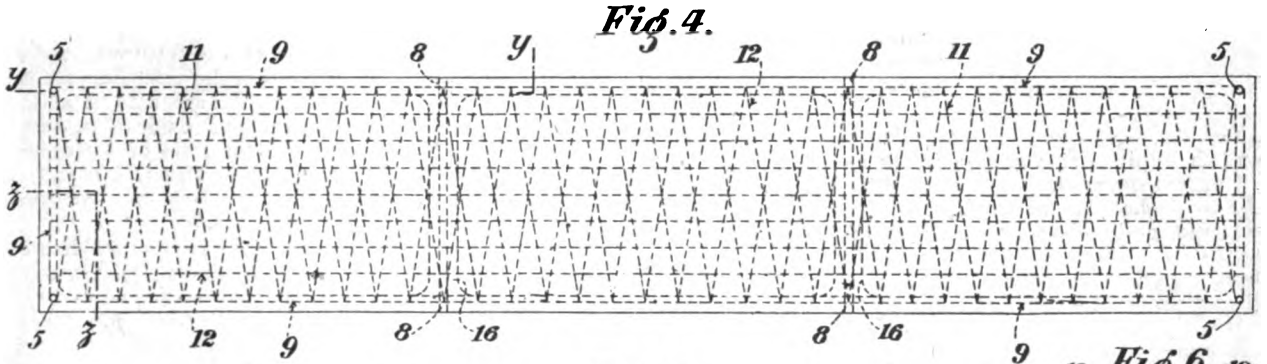


Fig. 5.

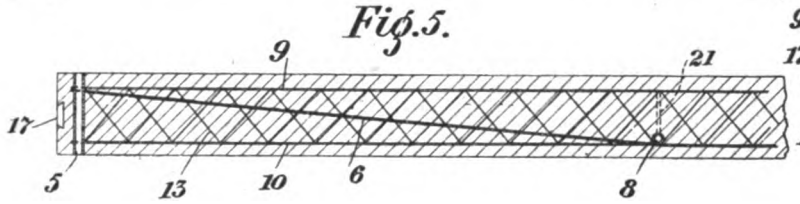
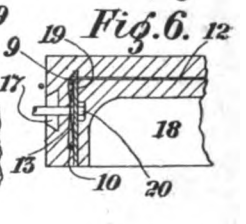


Fig. 6.



by means of wires 13. The wires 11 and 13 constitute a kind of lattice work reinforcement, which may be strengthened by longitudinal wires 12, which connect the ends of the rope 9 together. When the reinforcement has been arranged in the mould the concrete is filled in and thoroughly packed so as to fill up the spaces between the cement 3 and the wood framing 2, and when the concrete sets it will have the wire cables or ropes and wires embedded therein in a state of tension. When the concrete has thoroughly set the pins 4 are removed and the slab is taken out of the mould with the ropes and wires embedded therein, and also the sleeves 5 embedded therein. These sleeves appear as holes in the moulded block (see figs. 3 and 4). The cross tubes 8 are also embedded in the block, and are indicated by the holes 8 (figs. 3 and 5). The block as it appears at figs. 3 and 4 has two cross ribs 16 dividing the hollow underside into three portions, as indicated by the dotted lines. The two cross ribs 16 give greater strength to the block under compressive stresses. In fig. 5 a sleeve 5 is seen, and also the main cable 6 and the auxiliary wire ropes or cables 9, 10, together with the wire lattice work 13, and one of the tubes 8. Fig. 6 shows clearly the two auxiliary wire ropes or cables 9, 10, and the lattice wires 13 and longitudinal wires 12; 18 shows a portion of the hollow space at the underside of the block. From the dotted lines (figs. 3 and 4) it will be seen that the reinforcement is very complete, and that the wires and cables extend through the material in all directions. The sleeves 5 are very useful, as also are the tubes 8, as they form means whereby the slab can be readily raised or lifted by a crane or otherwise, and also in some cases for bolting the slabs together. In order that the slabs may be interlocked or keyed together when being fitted in position for a floor or a wall, they are made with dovetail grooves on the sides and ends. One of these dovetail grooves is indicated at 17 (fig. 5), and at 17 (fig. 6). For erecting a wall, a partition, or making a floor or ceiling as indicated at fig. 6, metal plates 19 are embedded in the ends or sides through which bolts 20 can be passed, thereby giving a continuous reinforcement.—Feb. 14, 1917.

BOYLE'S latest patent "air-pump" ventilators, supplied by Messrs. Robert Boyle & Son, ventilating engineers, 64 Holborn Viaduct, London, E.C., have been employed by the N.E. Marine Engineering Co., Ltd., Engineering Works, South Dock, Sunderland.

PATENT SPECIFICATIONS.

Selected by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

No. 15,248 (Oct. 28, 1915).—Emil Karkka, Kotka, Finland. Manufacture of putty.

16,946 of 1915 (dated May 31, 1916).—A. E. Bullock, "Belmont," Warwick Road, New Barnet, Herts. Frame or picture hook or hanger.

104,010 (Feb. 9, 1916).—Louis Davidson, 89 East Fourth Street, Manhattan, New York. Sewers and the removal of snow and storm water from road surfaces.

104,019 (Feb. 16, 1916).—A. F. Berry, 27 Woodville Road, Ealing. Electrical air purifying or conditioning apparatus.

104,024 (Feb. 18, 1916).—S. L. Ravier, 12 rue de Logelbach, Paris. Retaining walls.

104,031 (Feb. 23, 1916).—Universal Chemical Sprinkler Corporation, of Croton-on-the-Hudson, Westchester County, New York. Automatic fire extinguishing apparatus.

104,054 (Mar. 22, 1916).—W. H. Carmont, 74 Eden Street, Kingston-on-Thames. Construction of fuel economiser or fire basket for all domestic grates.

104,058 (Mar. 30, 1916).—H. D. D. Barman, 10 University Gardens, Glasgow. Micrometer caliper gauge.

103,614 (Aug. 18, 1916).—C. H. Blakeley, Junior, 165 Napier Street, Sheffield. Sectional saw.

103,706 (Feb. 16, 1916).—R. W. L. Phillips, 5 Newnham Road, Bedford. Square or device for determining or checking angles, and more particularly right angles.

104,082 (April 26, 1916).—British Thomson-Houston Co., Ltd., 83 Cannon Street, E.C., and R. F. Peckham, 130 Claremont Road, Rugby. Lighting fittings.

Any of the above specifications may be obtained from J. D. Roots.

THE volume for 1917 of "Clubs," edited by Mr. E. C. Austen-Leigh, M.A., and published by Messrs. Spottiswoode, Ballantyne & Co., Ltd., of New Street Square, E.C., has just been issued. The book contains a list of upwards of 4,000 English clubs in all parts of the world, giving name of club, address, name of secretary, date of foundation, number of members, subscription and class of member, in a particularly concise form, a handy book of reference, published at the small charge of 5*s*. The ardent golfer will find a list of golf clubs included.

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VARIETIES.

WE regret to announce that Captain Harold Mason Gleave, of the Sherwood Foresters, was killed at the Front on March 6. Captain Gleave was the only son of Mr. William B. Gleave, A.R.I.B.A., of West Bridgford, Nottinghamshire.

MR. E. GUY DAWBER, F.R.I.B.A., requests us to announce that in consequence of the expiration of the lease of his offices in Buckingham Street, Adelphi, W.C., he has removed to 38 Sackville Street, Piccadilly, W.

THE archæology and history of the parish of Bretforton were the subjects of a paper read by the Rev. J. E. H. Blake to the Birmingham Archæological Society. The speaker made special reference to an unusual feature in the church, the legend of St. Margaret being represented in one of the capitals of a column in the nave.

THE first fears that serious damage had been done by the fire at the Theatre Royal, York, have proved largely groundless, and it has been an agreeable surprise to find that the actual damage is infinitely less than what originally it was thought it would be. The re-opening of the theatre will as a result be possible at a much earlier date than was anticipated.

COUNCILLOR WILLIAM DAVISON, builder and contractor, one of the best known men of Southwick-on-Wear, died on the 10th inst., at the age of seventy-eight years. He was a native of the township, and had been a member of the local board since 1871. He built a good deal of house property at Southwick, the High Southwick School, the St. Columba's School, the Southwick Conservative Club, and the South Durham Street Chapel at Sunderland.

THE death has occurred very suddenly of Mr. George Malam Wilson, who was well-known in Sheffield as an architect of marked ability. Mr. Wilson, who was in his sixty-second year, took an interest in Biblical and Eastern matters, and was president of the Anglo-Israel Association. He was the eldest son of the late Mr. George Wright Wilson, who was also an architect, and he leaves a widow, two sons, who are in the Navy, and one daughter. Mrs. Wilson was a daughter of the late Canon Wright, who was at one time vicar of St. Silas', Sheffield.

ST. ANDREW-BY-THE-WARDROBE, where the parishioners have protested against the proposed closing of their church under the Bishop of London's scheme, gets a quaint surname from former proximity to the King's Great Wardrobe. This was a town mansion of the Beauchamps, which was purchased by Edward III. and assigned to the keepers of the royal apparel. William Romaine, the celebrated preacher, who was rector for many years, made St. Andrew-by-the-Wardrobe the first city stronghold of the Evangelical movement during the eighteenth century. The formation of Queen Victoria Street has brought into greater prominence the beauties of this Wren edifice.

A DEPUTATION from the Scottish National Housing Council has visited London to interview the Scottish Secretary regarding housing generally in Scotland, and were received by the Board of Admiralty with special reference to housing at Rosyth. The deputation included Bailie James Stewart, Glasgow, chairman of the Council; Mr. Robert Allan, Edinburgh, chairman of the Parliamentary Committee of the Scottish Trades Union Congress; and Mr. Robert Smillie, president of the British Miners' Association.

THE Romford Urban District Council, at their last meeting, adopted a report by the General Purposes Committee which stated that they had considered a letter from the Local Government Board, inquiring whether the Council had taken any steps towards the preparation of a town-planning scheme for the area; and enclosing copies of a resolution passed by the Royal Institute of British Architects and a letter received by the Board from the Romford Rural District Council. The Committee recommended that the Board be informed that no steps had been taken in connection with the preparation of a town-planning scheme, but that the Council were quite willing to send representatives to any conference of Local Authorities which might be convened for the authorities to consider the question.

IN a report to the Hitchin Rural District Council the Housing and Town-planning Act Committee gave details in regard to the Letchworth housing scheme of 100 cottages. Messrs. Souster's 54 cottages cost £10,411, or £35 over contract price; Messrs. Jeffs Bros., 24 cottages, £4,880, or £30 over; and Mr. J. Knox's 22 cottages, £4,347, or £57 over. The total cost of the buildings was £19,638, or £122 over contract, the average cost per cottage over contract figure being £1 4*s*. 5*d*. They recommend that £30 be paid to Mr. Donnelly, the Surveyor, for extra services in connection with the scheme outside the scope of his ordinary duties. The Clerk's costs in connection with the three leases amounted to £67 15*s*., plus the taxing fee, but he would accept £31 10*s*., plus the fees, amounting to £1, in settlement.

ALL who are endeavouring to do their patriotic duty in the present crisis by cultivating vegetables in house-gardens and allotments will find some useful information on artificial manures in a booklet called "Grow More Vegetables," issued by the Sulphate of Ammonia Association, of which the chairman is Mr. D. Milne Watson, LL.B., managing director of the Gas Light and Coke Company. Detailed instructions are given of the nature of the dressings required for individual crops, the most important constituent of those dressings being the sulphate of ammonia, which is one of the chief residuals of gasification, and is at once the best and the only British form of nitrogen produced. The booklet can be obtained free and post free on application to the Sulphate of Ammonia Association, 84 Horseferry Road, Westminster, S.W.

AT a service in St. John's Hospital Chapel, Ripon, on Saturday afternoon, the Dean of Ripon (Dr. Owen) dedicated two stained glass windows and altar cross and candlesticks. The windows are situated in the apse, on either side of the altar. The window on the north side depicts our Saviour described by St. John as "The Lamb of God," and was given by Mrs. Jennings and family, in memory of the late Mr. J. R. Jennings, of Aismunderby Close. The window on the south side portrays the finding of the Holy Grail by Sir Galahad, after Tennyson's poem. The greater part of the cost of this window has been defrayed by Miss Savatard, who wished the proceeds of the testimonial given to her on her retirement from the position of head mistress of the Cathedral Girls' School to be spent in erecting a memorial in St. John's to her brother, Captain T. W. Savatard, who gave his life for his country in Gallipoli. Both windows were the work of the Bromsgrove Guild.

THE "Yorkshire Post" reports that a letter was read from a Corporation tenant, at a meeting of the Hull Property Committee, asking the Corporation to build a fowl-house in his garden, and charge him with a percentage of the cost. The Chairman (Sir Alfred Gelder, M.P.) said although he was opposed personally to the keeping of poultry on this particular property, under the resolution of the City Council there was no option but to agree. Alderman Crook described the action of the Council as a piece of stupid philanthropy. This building of municipal fowl-houses and pigsties, he said, would land them into serious difficulty. Alderman Hall thought no barrier should be put in the way of increasing our food supply. Alderman Brown wanted to know the position of the Corporation, as landlord, in the event of the adjoining tenants insisting upon the keeping of their agreements, and the Town Clerk replied that all were weekly tenants. Alderman Crook said the increased rates and the increased cost of labour did not warrant the Council in building fowl-houses and pigsties for people who could quit their houses any week. Mr. Keighley asked why the tenants did not build their own poultry houses through building societies. The Chairman moved that the instructions of the Council be carried out, and that they build the fowl-houses, charging the tenant 10 per cent. on the cost. The life of a fowl-house, he said, was only ten years. Alderman Hall seconded, but the motion was defeated by a large majority.

IN a lecture given by Mr. John Warrack in the New Gallery, Edinburgh, in connection with the exhibition being held there in aid of Edenhall Hostel for Limbless Soldiers and Sailors, the lecturer stated that the fifteenth century, mainly represented in the exhibition, was the period in which native ideals were expressed by native craftsmen in native materials. In the world before the sixteenth century there were a simplicity and humour and a love of outdoor sports and nature which gave a distinctive note to their arts. There was little movable furniture in early times, and what there was seemed to have been developed from the oak chest. The main decorations of the rooms consisted of sets of tapestry which covered the cold stone walls. Several of the tapestries in the exhibition were explained by the lecturer, who then went on to discuss antique furniture. The expression "taking the chair" was attributed to the fact that a table formerly consisted of a long board round which the guests sat on benches; at the end of the table there was one chair on which the host sat, so that the chair carried the idea of state and authority. The first chairs made without arms, it was stated, were the result of extravagance in ladies' costume, crinolines having grown to such a size that chairs had to be produced without arms.

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THE
Architect and Contract Reporter.
FRIDAY, MARCH 30, 1917.

EDITORIAL NOTICES.

The Editor will always be pleased to examine drawings or articles with a view to publication, but cannot be responsible for the safety of those sent, though every reasonable care will be taken. Contributors desiring payment should clearly state their wishes. No payment will be made until after publication, and a commission to prepare articles or drawings does not necessarily imply acceptance or approval.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

We have upon our staff a very eminent Barrister, who will be glad to answer in the columns of this paper any legal question that may be of interest to our readers. All letters must be addressed "Legal Adviser," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

TENDERS, ETC.

**** As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.*

PAPER RESTRICTIONS.

We are compelled in the national interests to economise in the use of paper. Many journals have in consequence been compelled to refuse all returns from the trade. We are endeavouring to obviate such a course, but would ask our readers to assist us by placing a firm order with their newsagent or bookstall clerk for delivery, or we are prepared to forward copies by post from these Offices, should there be any difficulty in obtaining a supply.

NOTICE.

Next Friday being Good Friday, THE ARCHITECT *will be published on Thursday. All advertisements intended for this Number must reach the Office not later than* 2 P.M. *on Wednesday, April* 4.

No alteration of advertisement copy can be allowed after Saturday morning, March 31.

COMPETITION OPEN.

OLDHAM.—April 24.—The Health Committee are prepared to receive competitive designs for a proposed Nurses' Home at Westhulme from architects practising within the borough. A plan of the site may be seen and instructions and suggestions for the guidance of architects may be obtained on application at the Borough Surveyor's Office. Premiums of £15, £10, and £5 respectively will be awarded to the authors of the designs which are selected as first, second and third in order of merit. Competitive drawings with sealed letter containing name and address of the author to be delivered under cover at the Borough Surveyor's Office not later than 24th April next, endorsed "Design for Nurses' Home."

CONTRACTS OPEN.

ABERDEEN.—April 5.—For the erection of a sub-station at York Place, Aberdeen, for the Town Council. Mr. J. A. Bell, city electrical engineer, Millburn Street, Aberdeen.

DEWSBURY.—April 2.—For construction of several water-closets or outbuildings, for the Health Committee. Mr. H. Ellis, town clerk, Town Hall, Dewsbury.

DOWNPATRICK.—April 7.—For rebuilding sea walls, &c., on the road from Strangford to Ardglass, in the townland of Cloghy. County Surveyor's Office, Courthouse, Downpatrick.

HEYWOOD.—March 31.—For the extension of the outfall house at Botany. Messrs. James Diggle & Son, Hind Hill Street, Heywood.

IRELAND.—March 31.—For erection of a number of semi-detached houses, for the Belfast branch of the Auctioneers' and Estate Agents' Institute of the United Kingdom. Mr. W. J. Walshe, 37 Royal Avenue, Belfast.

IRELAND.—April 2.—Tenders for erection of National school buildings at Toureenalour (Inchigeela), co. Cork. Office of Public Works, Dublin.

IRELAND.—April 2.—For erection of a brick office at Adelaide Station, near Belfast. Deposit £1 1*s*. Mr. T. Morrison, Amiens Street Terminus, Dublin.

IRELAND.—April 4.—For improvement in lighting and ventilation of Sydare National School, Ballinamallard.

KIRKCALDY.—April 3.—For alterations at the gasworks, for the Town Council. Mr. J. Kincaid, Gas Office, Kirkcaldy.

LONDON.—The Commissioners of H.M. Works, &c., invite tenders for the execution of ordinary works and repairs to the buildings in their charge in the London districts for a period of one year from April 1, 1917. Maps showing the six districts may be seen, and copies of the lists of buildings, conditions of contract, schedules, memoranda of the amounts paid under the current contracts, and all particulars may be obtained on application to the Contracts Branch, Storey's Gate, S.W., on payment of £1 1*s*. deposit. Tenders may be submitted for one or more contracts, and alternative tenders for the acceptance of two or more contracts may also be submitted. Tenders must be delivered on a date to be subsequently announced, addressed to The Secretary.

SCOTLAND.—March 31.—For various works in connection with the erection of building to be used as a hydro-therapeutic and massage department at the Edinburgh War Hospital, Bangour, Edinburgh, for the Edinburgh District Board of Control. Mr. R. T. French, clerk and treasurer, Chambers, Castle Terrace, Edinburgh.

TENDERS.

CAVAN.

For repairs to Ballinagh Court House, for the Cavan County Council.

M'GOLDRICK & MORGAN, Clones (*accepted*) . £93 13 0

DUBLIN.

For repairs to a number of cottages in the district, for the Pembroke Urban District Council. Mr. G. L. O'CONNOR, F.R.I.A.I., architect, Mansion House Chambers, Dawson Street.

G. ROME & Co. (*accepted*) £549 0 0

IRELAND.

For extension of office attached to board room, for the Killarney Guardians.

J. J. FLEMING (*accepted*) £84 16 6

MANORHAMILTON (IRELAND).

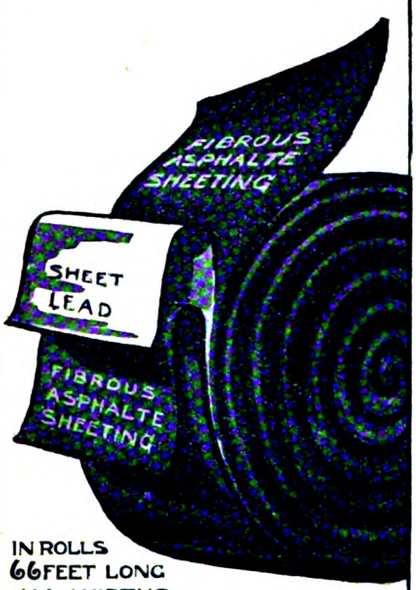
For repairs to Manorhamilton waterworks, for the Rural District Council.

O'HARA & Co., Sligo (*accepted*) . . . £30 16 3

THE few who know Edgar Degas, and the hundreds who enthusiastically admire his wonderful art, will regret to learn that the great painter, who was born in 1834, lies very seriously ill in Paris. It may be recalled that he was seated in an ante-room of the Manzi-Joyant Gallery one day in the winter of 1912, when a man rushed in to announce the sale at no less than £17,400 of "Les Danseuses à la Barre." Degas well remembered selling the picture years before at £20.

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WORKS PRACTICE IN THE METAL INDUSTRY.

AT the annual meeting of the Institute of Metals, which took place on March 22 at Burlington House, Piccadilly, London, the members present were asked to give their consideration to four most interesting papers dealing with various aspects of metal melting, with special reference to the type of fuel used in the process.

Mr. George Bernard Brook, lecturer in Non-ferrous Metallurgy in the University of Sheffield, began his paper on "Coal-Gas as a fuel for melting non-ferrous alloys," by stating that gas had always seemed to him the ideal fuel for such purposes. He then proceeded to give particulars of a test undertaken by him on a large scale and closely following commercial practice, in order to provide reliable data upon which manufacturers could work. From the results of this test the main advantages of coal-gas as a fuel may be summarised as follows:—

1. The absence of dirt and accumulated ashes.
2. The elimination of the difficult and wasteful process of "slagging."
3. Economy in fuel.
4. Convenience.
5. Considerably smaller loss of metal than with solid-fuel furnaces.
6. Reduction in actual fuel costs.
7. Higher speed of melting, ensuring greater output.
8. Superior mechanical qualities of the metal.
9. Reduction of oxidation to the minimum.

Mr. Brook was followed by Mr. C. M. Walter, B.Sc., of Birmingham, who discussed in detail "Metal Melting by means of High Pressure Gas," and laid special stress on the point of metal losses, which, he said, should receive full consideration in any comparison of the relative melting efficiencies of various types of furnace plant. He pointed out that very considerable economies had been obtained in the melting of brass with gas-heated furnaces, the regulation of the temperature of which is under complete control, whilst the atmosphere in contact with the surface of the metal is non-oxidising, and any metal spilt over the side of the pot is directly recoverable by the removal of the bottom plate from the furnace; and he gave it as his opinion that the economies effected owing to the reduction of metal losses alone where high-pressure gas furnaces are employed, as compared with solid fuel furnaces, more than outweighs the extra fuel cost involved.

The third paper, by Mr. W. J. Hocking, dealt with "Metal Melting as Practised at the Royal Mint," and gave, among other interesting details, the results of a protracted series of experiments, made with various classes of fuels and burners, which proved that the most satisfactory results as to speed of melting and economy of cost were obtained by the use of coal-gas at low pressure. Mr. Hocking stated that comparative records kept over two periods of five consecutive years, during the latter of which (when gas was used) nearly 10,000 tons of metal were melted and cast into bars for coinage, show an economy in favour of gaseous fuel under each of the following heads: Output (the increase per furnace varying from 88.5 per cent. to 161.1 per cent. with different metals); fuel expenditure (a 3½ per cent. cash saving effected with gas); cost of graphite goods (a 32.6 per cent. reduction effected with gas); and cost of labour (a 20 per cent. reduction).

Mr. H. M. Thornton, M.I.Mech.E., and Mr. Harold Hartley, M.Sc., jointly presented the concluding paper on "The Melting of Brass and Copper in a Crucible Furnace with Coal-Gas Fuel," and gave figures to prove that the thermal efficiency of the gas furnace is about five times that of the average solid fuel furnace. In regard to the life of pots, they stated that "In a gas-fired furnace the abrasive action of the solid fuel is eliminated, the direction of flow of the gas stream is under better control, the sulphur content of the fuel is very small, there is no fire to poke, and clinkers have not to be removed from the outside of the pot, so that it is not surprising that long lives can be obtained. . . . We should expect a 50 per cent. increase in the pot life when a gas-fired furnace is substituted for one coke-fired." They also hold that "to claim a saving of time for melting of 25 per cent. with a gas-fired furnace, against ordinary practice with a solid fuel furnace, in the melting of brass would not be excessive."

THE INSTITUTE OF BUILDERS.

AT the thirty-third annual meeting of the Institute of Builders held on March 7, the annual report was presented and the usual formal proceedings in connection with the election of Council and officers were transacted, the following being elected: President, Mr. G. Bird Godson; Vice-President, Mr. F. Shingleton; Hon. Treasurer, Mr. F. G. Rice; Hon. Auditors, Messrs. E. M. Sharman and F. Wall. The following were elected to fill vacancies on the Council: Messrs. F. M. May, R. J. Holliday, H. Willcock, Jas. Storrs and G. M. Burt.

In the course of the Report attention is called to the difficulties under which the business of such an organisation as this has to be carried on at the present time, but regardless of the innumerable calls made upon its members in other directions, the Council has found time to discuss and dispose of many questions of importance that have presented themselves during the year.

A number of members and sons of members are on active service; some have been honoured with War Distinctions, many have been seriously wounded and some have made the supreme sacrifice.

The important question of Apprenticeship and Technical Education has been carried a considerable step forward. As the result of conferences between the London (Central) Advisory Committee for Juvenile Employment and representatives of the Employers and Trade Unions of the Building Trade, a scheme, originally drafted by this Institute, was discussed with the result that a scheme of Apprentice Training has been evolved which it is hoped will be adopted for London and form a model from which other schemes may be adapted suitable for the various provincial districts, seeing that the National Federation of Building Trades Employers has approved it.

The Council has in many ways endeavoured to encourage boys to choose the building industry as their future life-work and means of livelihood.

Negotiations for a form of sub-contract, for the use of builders with their own sub-contractors, have been carried on during the year by a Joint Committee representing this Institute, the National Federation of Building Trades Employers and the Confederated National Association of Master Plasterers, Plumbers and Slaters, resulting in an agreed document which will shortly be submitted to the respective main bodies concerned with a view to its approval and adoption by them.

The Council, looking to the future, has taken up the question of organisation with a view to enlarging the scope and usefulness of the Institute, and substantial progress has been made in the preparation of a scheme, the object being to raise the standard of technical qualification required in the industry, and so improve the status of those engaged therein.

The Council has been fully alive to the serious condition of affairs brought about by the restrictions imposed upon building work by the orders of the Government and has co-operated with other bodies in making representations thereon.

There is a change to record in the Secretaryship of the Institute. Mr. Costigan, who has for many years occupied that office, having retired for reasons of health. The Council has appointed Mr. A. G. White, of Pen Corner House, Kingsway, London, W.C. 2, to succeed him, to whom in future communications should be sent.

A FIRE broke out at Oaklands Red Cross Hospital, Clevedon, Somerset, early on Saturday morning. There were sixty-nine patients in the ward in which the outbreak occurred, but the fire was kept under control while they were being removed. There was no panic. The wing of the hospital was destroyed.

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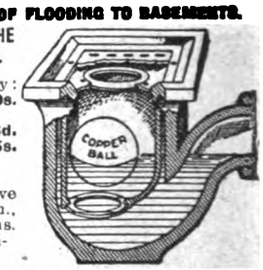
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BRITISH PATENT SPECIFICATION.

Selected by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the completed specification.

No. 102,814 (No. 92, January 3, 1916).—Reinforced blockwork beams, floors, and roofs.—G. E. Clare, architect, of 2 College Road, Harrow.—This invention relates to reinforced blockwork beams, floors, and roofs in which walls, partitions, and windows can be built up of vertically cavitied block units provided on their contracting sides with dovetail grooves, having rounded-off edges and angles, so that when a course of block units is laid the dovetail grooves in one block face the dovetail grooves in the abutting side of the adjoining blocks, and such blocks are secured together by filling in the dovetail grooves with Portland cement or other grout. The blocks of one course are arranged to break joint with the blocks of another course, and to bring the vertical cavities into alignment to form continuous cavities, some of which are filled with cement grouting having reinforcing steel bars or rods embedded therein, whilst other cavities are left to form air cavities. This invention provides block units which are narrower at the top than at the bottom, such narrowing at the top being necessary, as said block units are laid horizontally, to permit of the abutting dovetail grooves being filled with Portland cement or other grouting. Fig. 1 is a sectional view of part of a floor. Fig. 1A is a sectional side view of fig. 1. Fig. 1B is a fragmentary plan view of floor shown in fig. 1.

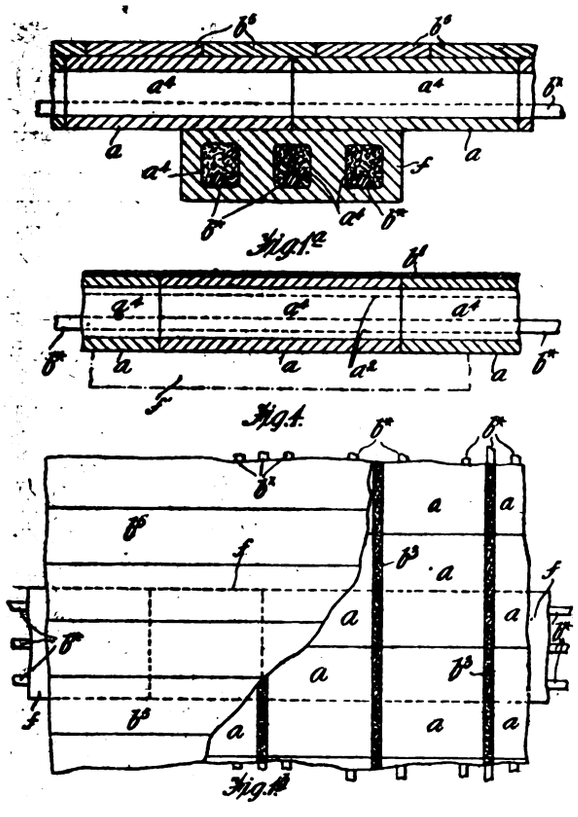
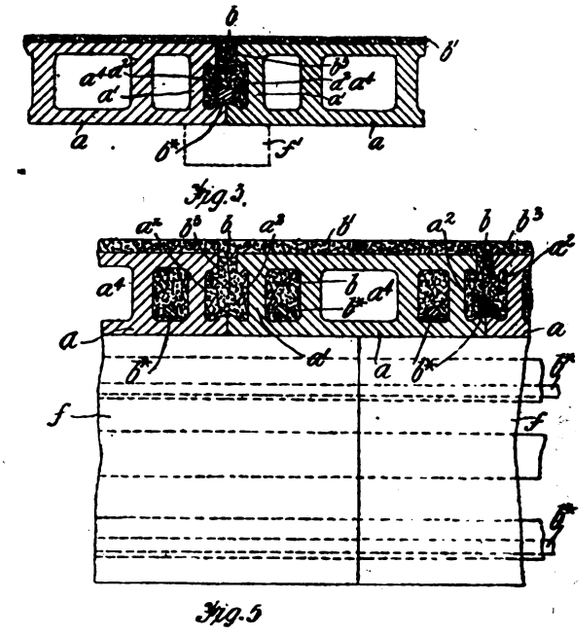


Fig. 2 is a sectional view on line 5, 5, of fig. 1, to a reduced scale, showing a reinforcing rod in the dovetail joint between block units. Fig. 3 is a sectional view of part of a floor with reinforcing rods in the dovetailed joint between the block units, with temporary wood support until cement is set. Fig. 4 is a sectional side view thereof. Fig. 5 is a sectional view of part of a floor with reinforced beam on edge for larger spans. Referring to figs. 1, 1A, 1B, and 2, the floor is composed of a series of beams placed side by side and cemented together to form a whole, each beam being made up of a number of block units a, longitudinally cavitied and placed end to end and sufficient to extend from wall to wall—fig. 2—the blocks a being threaded on rods b^* passing through the cavities a^4, the rods b^*, which extend the length of the beam, being embedded in the cement grout with which the cavities a^4 are filled. The top of each block a is of less width than the bottom, so that when the beams are placed side by side there is formed a narrow channel b^3—figs. 1 and 1B—extending down to the dovetail grooves a^2 formed in the sides a^1 of the blocks a, and such grooves a^2 and channels b^3 are filled with cement grout b, thus binding adjoining beams together (reinforcing rods b^*, if desired, being embedded in grouting b), the channels b^3, when filled with grouting, forming a fixed fillet or strip for the reception of the nails b^4 used for nailing down the floor boards b^5, the ends of the reinforcing rods b^* being hooked over steel plates b^6—fig. 2—running the length of the floor. Alternatively, the block units a to form a floor may be laid end to end and side by side on temporary battens f^1, and the reinforcing rods b^* introduced and cement grouting b poured into





the dovetail grooves a^2 of two adjoining block units a, as in fig. 3, said support being removed when the cement is set. For hard floors the grout would be formed of a damp-proofing cement and sand, asphalte, or other material which may be used to form the upper or floor surface b^1 proper—figs. 3 and 5. If the span of the floor is large, then the same is supported on beams f formed of cavitied block units laid flat, as in figs. 1 and 1A, and threaded on rods b^*, embedded in grouting in the cavities a^4, or, as in fig. 5, on beams made of the block units laid on edge. The invention is equally applicable to the construction of roofs.—January 11, 1917.

THE late Mr. F. J. Mankiewicz has bequeathed to the London Museum his entire collection of prints and drawings that relate to London. This collection includes all the most famous topographical views, each plate in its finest state, many of them of the greatest rarity. On the reopening of the London Museum a gallery will be set apart for the display of the collection in its entirety.

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PATENT SPECIFICATIONS.

Selected by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

No. 104,187 (July 11, 1916).—Walter Jones, J.P., and Jones & Attwood, Ltd., Titan Works, Amblecote, Stourbridge, Worcs. Purification of sewage and other liquids.

104,218 (Feb. 28, 1916).—Frederick Shirtliff, High Street, Hampton Hill, Middlesex. Mechanically driven hack saws.

104,224 (March 1, 1916).—William Marriott, The Grange, Brinton, Melton Constable, Norfolk. Metal reinforcements of reinforced concrete constructions.

104,228 (March 7, 1916).—Gustav Hendriks, 8 Murray Street, Glasgow. Plates and sheets for building or structural work.

100,114 (Feb. 24, 1916, dated under International Convention Feb. 15, 1915).—Johannes Fleischer, Moltkestrs 57, Stuttgart, Germany, and the firm Haegele & Zweigle, Esslingen on the Neckar, Germany. Gas heating stove.

102,252 (October 5, 1916, dated under International Convention Nov. 18, 1915).—A. M. Lane, 4121 Forest Park Boulevard, St. Louis, Miss., U.S.A. Casement and similar windows, doors and the like.

104,254 (October 4, 1916).—J. D. Sloan, 151 Queen Street, Glasgow. Chimneys and ventilating shafts.

104,262 (May 2, 1916).—William Lewis, 13 Shaw Street, Quarry Bank, Birkenhead. Lifting slings or like devices for holding objects squarely while being hoisted or lowered.

104,271 (May 17, 1916).—Roland Powell, 2 Bartholomew Row, Birmingham. Combined casement stay and fastener.

104,274 (May 23, 1916).—J. S. Ewart, 1 Wheeler Gate, Notts. Means for and method of building walls, partitions and the like.

104,296 (July 28, 1916).—H. T. Blake, Rose Bank, Cantelupe Road, Ross, Herefordshire. Taps and valves

104,087 (May 4, 1916).—F. S. Plant, Deeping St. James, Lincs. Means of waterproofing cement.

104,147 (Nov. 23, 1916).—Johnson Mills and M. J. Mills, 33 Brookfield Road, Crumpsall, Manchester. Swing bolts for use with man-hole covers, kier lids and the like.

104,140 (Oct. 27, 1916).—A. J. Collins, Haymeans, Bishops Stortford, Herts. Revolving cowl for chimneys, ventilation and the like.

104,142 (Nov. 9, 1916).—The Benjamin Electric, Ltd., 1A Rosebery Avenue, and E. Fowler, 15 Diamond Road, Slough, Bucks. Means for supporting electric lamps.

Any of the above specifications may be obtained from J. D. Roots.

WE are asked to mention that a reader whose curiosity had been aroused by repeated advertisements in this journal wished to prove whether Portland cement was really watertight. He constructed two fishponds, one with cement and sand, and the other with Pudloed cement and sand. The former required to be constantly supplied with water to maintain the level, but the other was proved perfectly non-porous. The makers of Pudlo inform us that they will be glad to send free of charge, to any interested readers, sufficient Pudlo to enable them to make a practical test.

A MEMORIAL to the late Archdeacon Churton has been dedicated by the Bishop of Lewes at St. Peter's Church, Bexhill, in the form of a new pulpit and calvary, of hand-carved unpolished oak. The inscriptions on each were to the following effect: "To the glory of God, and in loving memory of Theodore Townson Churton, Archdeacon of Hastings and Rector of Bexhill, 1900-15." This was subscribed for by his parishioners and friends. The pulpit stands about 5 ft. 6 in. high, and has five figures carved around the front, representing our Lord, St. Wilfred, St. Richard, St. Peter, and St. Paul. Perpendicular at each side is the representation of a vine. The calvary is also of unpolished hand-carved oak measuring about 3½ by 2½ ft., and stands just to the rear of the pulpit.

VARIETIES.

PAISLEY carpenters and joiners have been granted 1*d.* increase, making their wages 1*s.* an hour.

MESSRS. AMBROSE POYNTER, F.R.I.B.A., and George H. Wenyon, M.S.A., announce their change of address from 9 South Molton Street, W., to 8 Grafton Street, Old Bond Street, W. 1. Their new telephone number is Gerrard 2487.

THE managers of the Selby Abbey National Schools are to build a new elementary school in the newly developed district of Selby for the accommodation of 500 scholars, and it will be endowed for teaching religious education in conformity with the doctrines of the Church of England.

"WE want to make our rural districts more like what they were in mediæval times," said Lord Henry Bentinck, presiding at Westminster Central Buildings at a public meeting called by the National Land and Home League. In those days the people in those districts lived with common interests in a common life; and the league had set out to break up the isolation which now ruled in those parts where the labourer resided.

A SECOND series of water-colour drawings of "The British Firing-Line," by Second Lieut. E. Handley-Read, of the Machine Gun Corps, will shortly be exhibited at the Leicester Galleries, Leicester Square. A collection of this artist's drawings of the Western Front was shown last year in London and in several provincial public galleries with great success, and by military critics his work has generally been acclaimed to be the most convincing and accurate record of the war which has so far been produced. Mr. Handley-Read only recently returned from the Front, and the exhibition, which opens on April 3, will contain drawings of villages and places, the names of which the "Great Push" has made familiar to everyone.

THE late Mr. Baldwin Latham, M.Inst.C.E., in his eighty-first year, died on the 13th inst. at Croydon, with which town his connection began in 1853, when he became engineer and surveyor to the Local Board of Health. Subsequently his brother took over the post. The deceased was superintendent of the special constables enrolled in Croydon in 1868 during a great Fenian scare. Latterly Mr. Latham had assisted in engineering enterprises in all parts of the world. When war broke out he was concerned in the erection in Wales of the biggest dam in the British Isles. Since the outbreak of war he had been to India and Egypt for the Government to advise on engineering matters. Meteorology was a favourite study. He had several times been president of the Royal Meteorological Society.

ADDRESSING the stockholders of the Manchester Royal Exchange at their annual meeting, Sir Arthur A. Haworth (chairman) said that with regard to the new building the difficulties experienced in any undertaking of this kind in the earlier days of the war had not in any way diminished, but in various ways have become more acute. The difficulties of obtaining materials and the shortage of labour are very great, though in spite of them all the extension scheme is making progress. On the Market Street side the office alterations have been completed and the premises are now fully occupied, while the erection of the building on the new site has reached the level of the third storey. The demolition of the old building on the Bank Street side is proceeding rapidly. It looks as though all the shops and the great majority of the offices will be let before the opening day. There will be forty-three shops (excluding restaurant and café) and some 253 offices in the estate.

PROFESSOR J. W. COBB, head of the Coal Gas and Fuel Industries Department at the Leeds University, gave a lecture to manufacturers and others interested in the fireclay industry on temperature measurement in clay works practice. He remarked that it was a tradition in the clay industry, as in many others, to depend almost exclusively upon the personal judgment and acquired skill of a fireman in the determination of the temperature in the kilns used for burning bricks, pottery, and porcelain. Modern science had produced a far more effective means for this purpose in several directions, giving the possibility of much greater precision in the manufacturing operations. Professor Cobb explained the use of instruments now in the hands of the clay-worker for the control of temperature. Many of these, he pointed out, are dependent upon the application of electrical principles, but one type which was shown in several varieties depends upon the fusibility of carefully prepared mixtures of standard composition.

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THE
Architect and Contract Reporter.
FRIDAY, APRIL 6, 1917.

EDITORIAL NOTICES.

The Editor will always be pleased to examine drawings or articles with a view to publication, but cannot be responsible for the safety of those sent, though every reasonable care will be taken. Contributors desiring payment should clearly state their wishes. No payment will be made until after publication, and a commission to prepare articles or drawings does not necessarily imply acceptance or approval.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

We have upon our staff a very eminent Barrister, who will be glad to answer in the columns of this paper any legal question that may be of interest to our readers. All letters must be addressed "Legal Adviser," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

TENDERS, ETC.

*** *As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than* 2 P.M. *on Thursdays.*

PAPER RESTRICTIONS.

We are compelled in the national interests to economise in the use of paper. Many journals have in consequence been compelled to refuse all returns from the trade. We are endeavouring to obviate such a course, but would ask our readers to assist us by placing a firm order with their newsagent or bookstall clerk for delivery, or we are prepared to forward copies by post from these Offices, should there be any difficulty in obtaining a supply.

COMPETITION OPEN.

OLDHAM.—April 24.—The Health Committee are prepared to receive competitive designs for a proposed Nurses' Home at Westhulme from architects practising within the borough. A plan of the site may be seen and instructions and suggestions for the guidance of architects may be obtained on application at the Borough Surveyor's Office. Premiums of £15, £10, and £5 respectively will be awarded to the authors of the designs which are selected as first, second and third in order of merit. Competitive drawings with sealed letter containing name and address of the author to be delivered under cover at the Borough Surveyor's Office not later than 24th April next, endorsed "Design for Nurses' Home."

CONTRACTS OPEN.

DOWNPATRICK.—April 7.—For rebuilding sea walls, &c., on the road from Strangford to Ardglass, in the townland of Cloghy. County Surveyor's Office, Courthouse, Downpatrick.

LONDON, S.E.—April 12.—For remodelling pig-styes at the Bermondsey Military Hospital, Ladywell, S.E., for the Bermondsey Board of Guardians. Deposit £5. Mr. E. P. Fenton, 283 Tooley Street, S.E.

TENDERS.

BARROW-IN-FURNESS.

For the inside cleaning and painting of the infirmary at Roose, for the Guardians.

D. M. Ross, Barrow-in-Furness (*accepted*)	£58 15 0

CHELMSFORD.

For painting works, for the Town Council. Mr. P. T. HARRISON, A.M.I.C.E., borough engineer.

W. E. WISBEY, 21 London Road, Chelmsford (*accepted*)	£22 0 0

LONDON.

For supply and erection of new economisers, for the St. Marylebone Borough Council.

E. GREEN & SONS, LTD., London (*recommended*)	£1,850 0 0

MR. WILLIAM DE MORGAN, of 127 Church Street, Chelsea, S.W., the well-known artist and author, one of the founders of the Arts and Crafts Exhibition Society, who died on February 15 last, aged seventy-seven years, left estate of the gross value of £3,953, of which £3,494 is net personalty.

AT the request of the Belfast Association of Master Painters a day class for apprentices in the painting and decorating trades was formed in the Municipal Technical Institute, Belfast, at the commencement of the present session. The apprentices were allowed to attend the class during their ordinary working hours on two afternoons per week, and their fees were paid by their employers. Prizes were also given by the Master Painters' Association for the best work in painting and enamelling, sign writing, graining, and drawing respectively.

MR. ARTHUR M. LEON, of Cardiff, architect and surveyor to the Stacey Estates, has volunteered for active service. He is posted to the Northamptonshire Regiment as a second-lieutenant (technical officer), and leaves for the Western Front shortly. Lieutenant Leon, who is the son of the late Mr. M. Leon, of Cardiff, is forty-three years of age, and has two nephews serving. He had a good training in military duties when attached to the old local Volunteers.

THE death occurred very suddenly, on the 29th ulto., at his residence, Green Hayes, Banstead, of Mr. Howard Woollright Trollope, in his fifty-ninth year. The elder son of the late Joseph Harvey Trollope, of Queenswood, Beddington, and Westminster, he was a director of George Trollope & Sons and Colls & Sons, Ltd., builders and contractors.

LORD PROVOST LORNE MACLEOD presided at the annual meeting of the Edinburgh Royal Institution for the education of deaf and dumb children. In moving the adoption of the report, the Chairman said that the main feature was the completion of the new educational block which had been built. The block, with certain alterations, had cost considerably over £4,000.

LAST Saturday night the large pavilion of the West End Pier, Morecambe, was completely destroyed by fire, the damage amounting to about £20,000. The building, capable of holding 2,000, was opened in 1896. No damage was done to the pier-head, and the greater part of the decking and the under structure escaped.

DURING the continuance of the war, Mr. C. E. Salmon proposes to close his Reigate office, and would be obliged if all correspondence could be addressed to him at his London Office, Finsbury Pavement House, E.C. (tel., London Wall 8,900), whilst any urgent communications may be sent to Ridgefoot, Pilgrims' Way, Reigate.

ACCORDING to a recent article in the "Frankfurter Zeitung," and an interview with a prominent librarian at Frankfort, plans are being considered for the establishment of a general technical library at Frankfort-on-Main, to be open for public use. In this way it is thought a broader spirit of scientific and technical investigation will be fostered. An attempt will be made to furnish technical information which will have an historical as well as purely scientific value. Technical libraries which have existed previously have not been open to the general public, being the property of scientific societies, technical associations, and the larger industrial concerns, and it is said that the plan will be unique among the cities of Germany.

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ELECTRIC LAMPS AND SPELTER.

NEW orders have been issued by the Minister of Munitions dealing with electric-lamp glass and spelter respectively.

It is provided that no person shall manufacture any electric-lamp glass unless the purpose for which such glass is required has been approved. Such approval must be evidenced by giving the number of an Admiralty, War Office or Ministry of Munitions contract for which the glass is necessary; or producing a certificate authorising the supply issued by the Director of Optical Munitions and Glassware Supply. Manufacturers of electric-lamp glass are required to render to the Director of Optical Munitions and Glassware Supply at regular intervals full and accurate returns of their manufacture and output of electric-lamp glass in accordance with the directions from time to time given by the Director. No person shall buy, sell or deal in any electric-lamp glass situated or to be manufactured outside the United Kingdom unless a certificate authorising it has been issued by the Director of Optical Munitions and Glassware Supply. Electric-lamp glass shall include all glass intended for use in the manufacture of electric lamps except glass used or intended for use in lamp caps for insulating purposes, but shall not include glass shades and similar accessories. All applications in reference to the Order should be made to the Director of Optical Munitions and Glassware Supply, Ministry of Munitions of War, 117 Piccadilly, W. 1. No person shall, until further notice, purchase, sell, or, except for the purpose of carrying out a contract in writing existing prior to such date for the sale or purchase of spelter, enter into any transaction or negotiation in relation to the sale or purchase of spelter situated outside the United Kingdom except under the terms of a licence issued under the authority of the Minister of Munitions. No person shall, until further notice, purchase or take delivery of any spelter situated in the United Kingdom except under licence, or sell, supply or deliver any such spelter to any person other than the holder of such a licence and in accordance with its terms; provided that no such licence shall be required in the case of any sale, purchase or delivery of such spelter for the purpose of necessary repairs or renewals involving the use of not exceeding 1 cwt. of such spelter. No person shall, except under licence, use any spelter for the purpose of any manufacture or work except: (*a*) For the purpose of a contract or order certified to be within class "A" and (*b*) for the purpose of necessary repairs or renewals involving the use of not exceeding 1 cwt. of spelter.

All persons shall, in the first seven days of each month, commencing with April, send in to the Director of Materials (A.M.2.C.), Ministry of Munitions, Hotel Victoria, London, W.C. 2, monthly returns as to spelter held or dealt in by them; but no return is required from any person whose total stock of spelter in hand and on order for future delivery to him has not at any time during the preceding month exceeded one ton. For the purpose of this Order the expression spelter shall mean spelter of all qualities, and shall include sheet and rolled zinc, scrap zinc, hard spelter, dross, zinc ashes, flux skimmings and zinc dust.

All applications for licences should be made to the Director of Materials (A.M.2.C.), Ministry of Munitions, Hotel Victoria, London, W.C. 2, and marked "Spelter Licence." Every applicant for a licence must state the amount and quality of metal required by him per month, and the use to which it will be put.

THE L.C.C. reports in favour of extension of the option to Lord Grey to acquire the Crescent site of Aldwych. It was hoped that the proposals with regard to the Dominion building scheme would have been dealt with by an Imperial Conference, but now steps are being taken to ascertain the views of Conference delegates on the question of the utilisation of the site for Imperial purposes. The option enables the site to be rented at £50,000 a year or purchased for £1,300,000.

VARIETIES.

IT is proposed to form a war museum in Liverpool, and a committee has been appointed.

THE Box Tunnel between Chippenham and Bath, on the Great Western Railway, which has been closed since January 1 for renovation, has been re-opened for traffic.

A PUBLIC museum and art gallery were opened in the Borough of Nuneaton on Monday last. The buildings have been given by Mr. E. F. Melly, formerly Mayor of Nnneaton.

THE Committee of the Municipal Council of Paris have unanimously approved a proposal to set up in Paris a statue of Lincoln, which was offered by the United States to the French capital.

A STATUTORY notice has been issued by the Vicar of Selby, the Rev. Dr. Solloway, Colonel Hawdon, and other local managers, of a proposal to provide a new public elementary school, to serve the new and growing district of Selby.

IN the crypt of St. Paul's Cathedral, close to the grave of Cruikshank, a memorial has been unveiled to the late Sir William Huggins, O.M., and Lady Huggins. The tablet, the work of Mr. Henry Pegram, A.R.A., bears portraits of both husband and wife.

THE Governors of the Huddersfield Technical College are embarking on an extension scheme at the college which will cost £85,000. A department of coal-tar colour chemistry is to be established at once, and the extension of the textile, mechanical, electrical engineering, and other departments is to be proceeded with after the war.

MUCH indignation has been aroused by an abominable act of desecration at Beckenham, a large wayside Calvary, which had been standing in the grounds of All Saints' Church, Beckenham, for some months, and which was erected in memory of men who had given their lives at the Front, having been recently cut down during the night.

THE death has occurred at Knockinlaw, Kilmarnock, of Mr. Robert Forrest, sole partner of the firm of Messrs. Boyd & Forrest, building and railway contractors. Mr. Forrest was seventy years of age. A native of Kirriemuir, Mr. Forrest went to Ayrshire about forty-five years ago. The restoration of Paisley Abbey, Chirk Castle, and Dean Castle were carried out by the firm, and they also built the chapel at Mount Stuart for Lord Bute, Rowallan Castle for Lord Rowallan, and lodges in Caithness-shire for the Duke of Portland.

THE stained glass window which Colonel Hawdon, senior vicar's warden, is to present to Selby Abbey in memory of his brother, the late Mr. Joseph Hawdon, is being prepared by Messrs. John Hardman & Co., of Birmingham. A faculty has been obtained to insert the glass in the east window of the south choir aisle. The three lights will be designed as follow: The middle light will represent St. William of York (1154), and will contain the arms of the saint. Below this light will be a scene representing the saint crossing the Ouse Bridge at York, and the miracle that took place when the people who fell into the river were saved by his intercession. On one side will be the figure of St. John of Beverley, and on the other of St. John of Bridlington. Under the figure of St. John of Beverley (718) will be a scene representing him giving instruction to the Venerable Bede. Beneath St. John of Bridlington (1379) a scene will be portrayed showing the Bridlington Canons beseeching him to become prior, which in his humility he refused. In the tracery will be incorporated the original design of the arms of one of the sons of Edward III.; also the arms of St. John of Beverley and St. John of Bridlington. All the original glass is to be incorporated in the window.

TRADE NOTES.

WE have received an account of one of the most interesting instances of the efficacy of waterproofed cement. The case is point is a dock "Somewhere in England." At high tide the sea-water almost reaches the top of the retaining wall of the dock, and much trouble has been occasioned owing to water penetrating the wall. Many remedies were unsuccessfully adopted, and owing to advertisements seen in the technical journals Pudlocd cement was used with perfectly successful results.

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THE
Architect and Contract Reporter.
FRIDAY, APRIL 13, 1917.

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CONTRACTS OPEN.

AYLESBURY.—For the complete installation of a 200 kw. direct-coupled internal-combustion engine and generator, together with fuel plant and accesories, for the Corporation. Mr. W. A. Turnbull, A.M.I.C.E., electrical engineer, Electricity Works, Aylesbury. Deposit £1 1s.

BRACO (CRUDEN, SCOTLAND).—April 18.—For the mason, carpenter and slater works for proposed steading at North Braco. Mr. G. D. Massie, 147 Union Street, Aberdeen.

DUDLEY.—April 16.—For taking down the old buildings at the junction of King Street and Flood Street adjoining Messrs. Timmins & Foulke's premises; also to rebuild a boundary wall for the whole length of premises in Flood Street for the Public Works Committee. Mr. J. Gammage, C.E., borough surveyor, Town Hall, Dudley.

DURHAM.—April 17.—For outside painting at the following county police stations:—(1) Birtley, (2) Coxhoe, (3) Ferryhill, (4) Fighting Cocks, (5) Norton, (6) Sacriston, (7) Sedgefield, (8) Spennymoor, (9) Thornley, (10 Wingate, for the Durham County Council. Mr. A. E. Brookes, county surveyor, Shire Hall, Durham.

HENGOED.—April 14.—For reinstating portion of the damaged part of the Girls' County School, Hengoed, for the Governing Body of the Gelligaer County School for Girls, Hengoed. Mr. G. A. Evans, Ffrwd Offices, Mountain Ash.

LEIGH-ON-SEA (ESSEX).—April 25.—For erection of a bungalow for Mr. G. Hunter. Mr. O. Hocking, The Acorns, Rettendon, Chelmsford. Deposit 10*s.* 6*d.*

MEDOMSLEY (DURHAM).—For building boundary wall and the laying out of the ground at Medomsley churchyard. Mr. F. O. Kirkup, the Mining Offices, Medomsley.

NORWICH.—April 16.—For external painting of various schools for the Norwich Education Committee. Mr. C. J. Brown, architect, Cathedral Offices, The Close, Norwich. Deposit of 5*s.* per school.

PRESTON (LANCS.).—April 14.—For the repair and painting of lengths of timber and iron fencing and cast-iron parapets in connection with seventeen bridges in the West Derby Hundred, for the Main Roads and Bridges Committee. County Bridgemaster, County Offices, Preston.

READING.—April 23.—For erection of buildings and the repair and adaptation of a part of the disused police buildings at High Bridge, London Street, to be used for the purpose of a chief maternity centre for maternity and child welfare, for the Corporation. Mr. J. Bowen, A.M.I.C.E., borough engineer, Town Hall, Reading.

RICHMOND (YORKS.).—April 19.—For erection of ambulance house at the isolation hospital, for the Corporation. Mr. H. W. Marsden, borough surveyor, Richmond, Yorks.

WINCHESTER (WAR DEPARTMENT CONTRACTS).—April 16.—For repairs and materials in the following Engineer Districts in the Command: Winchester District (including Winchester, Reading and Oxford).

TENDERS.

SYDNEY (AUSTRALIA).

For supply of two steam turbines and condensers for Ryde Pymble pumping plant, for the Water and Sewerage Board.

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THE Co-operative Society at Stockton-on-Tees has provided the town with a public hall of which it has been badly in need for some years, and at the same time they have brought their dairy department up to date. The new premises will serve the purposes of a public meeting hall, dairy and club-room. It is three storeys high, stands at the corners of Durham Street and Leeds Street, and is built of Accrington red pressed bricks, relieved with stone. On the first floor there is a spacious landing equipped with office, cloak-rooms, and four rooms of varying dimensions which can be utilised for meetings and social functions. The hall, which is situated on the second floor, has a span of 552 inches and 70 feet in length, with seating accommodation for about 1,000 persons and a platform with accommodation for 100. The dairy is fitted with the latest machinery, and there is also a cold storage for surplus supplies. The whole of the new premises are heated on the low-pressure hot-water system, and the staircase and practically all other parts of the structure are fireproof.

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HOUSING SCHEME FOR DUNDEE.

A REPORT on the Dundee housing question has just been issued by Mr. Thomson, the City Engineer, which brings the matter up to date, and states what the Housing Committee of the Town Council proposes should be done.

Mr. Thomson explains in detail the schemes of town planning that have already been considered—the Stirling Park scheme, the Springhill scheme, and the Logie scheme. Instead of continuous ranges of tenements fronting streets, with openings only at great distances apart, it is proposed that the tenements should be in short lengths, with open spaces in front, in rear, and at the ends of the blocks. As far as the levels and nature of the land permit, all the tenements are so placed that the sun will reach during part of the day the windows of all inhabited rooms. Wash-houses and cellars, usually in the back spaces of tenements, are entirely omitted, and the land kept free from outbuildings, boundary walls, and similar obstructions to the free flow of air and admission of sunlight. Provision is made for the erection of wash-houses and baths, which can be used by the tenants in the new houses and also in the neighbourhood; and, as the schemes are intended to accommodate, under the best possible conditions, those who presently occupy the smallest size of house, provision is made in each scheme for the erection of a day nursery.

If land can be acquired at a reasonable price, the buildings can quite justifiably be spread over a larger area than formerly, and all reasonable means taken to provide the dwellers in the new tenements with facilities and surroundings as good as those provided for the dwellers in cottages. With these objects in view, it is recommended that the height of the tenements be limited to two storeys, with two exceptions in the Stirling Park scheme, where the surroundings and special circumstances justify three storeys. In tenements of this type the size of houses now urgently required to make a commencement in solving the housing problem can be conveniently arranged, and houses of only three rooms and under will be provided. In designing the houses the aim has been to provide accommodation suitable for the requirements of those employed in the adjoining industrial areas. Each dwelling will contain a living room of ample size, well lighted and ventilated, and with larder in direct communication with the outer air; a kitchen-scullery, with gas cooker, dresser, sink, and coal bunker, and with press for utensils; and an inside w.c., entering off the kitchen-scullery. A special system of ashbins will be provided for the removal of house refuse. A system of hot water and heating can be laid on from the washing-house and baths, which will tend to economy in fuel, convenience to occupiers, and improved sanitary conditions.

As to the question of cost, it is suggested that the Town Council should favourably consider whether the cost of land should form a charge against the public health capital account, and the cost of streets and footpaths a charge against the roads and streets capital account, instead of the housing account. This suggestion is made in view of the distinct gain to public health by the schemes.

The rents, which will include occupiers' rates, garden allotment if desired, certain house furnishings, and 6*d*. per week for the use of baths and wash-houses and hot water, are to range from 6*s*. 6*d*. to 9*s*. 6*d*. per week. With regard to the building cost, it is pointed out that it is difficult to estimate just now, but it is put down at £252,000 for the three schemes of 965 houses, less the grant in aid. The annual expenditure is estimated at £20,734, which will be met by the rents. If the cost of land and streets be added to the housing account, the rents will have to be increased by 6*d*. and 1*s*. per week.

JOHN CRUDEN, director, representing the Govan Entertainers, Ltd., was fined £100 at Glasgow for contravening the Defence of the Realm Act by carrying on the building construction of a picture palace at Govan without the permission of the Ministry of Munitions.

BRITISH PATENT SPECIFICATION.

Selected by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the completed specification.

No. 103,582 (May 1, 1916).—Concrete building slabs and moulds therefor, and walls comprising such slabs. —John Bellingham, of "Age" Buildings, Masterton, Wellington, N.Z.—This invention in part relates to slabs or blocks made of concrete used in the construction of walls and other parts of buildings, of the kind having studs integral with the slabs, the arrangement being such that, as the slabs are placed in position, the studs also are built up and serve the purpose of distance-pieces for keeping opposing or inner or outer layers of slabs at correct distances apart in the construction of hollow walls, the studs being made in half-parts forming half-studs, which are integral with the slabs and are connected together by the aid of metal ties. Each studded portion is provided with two recesses, one above and one

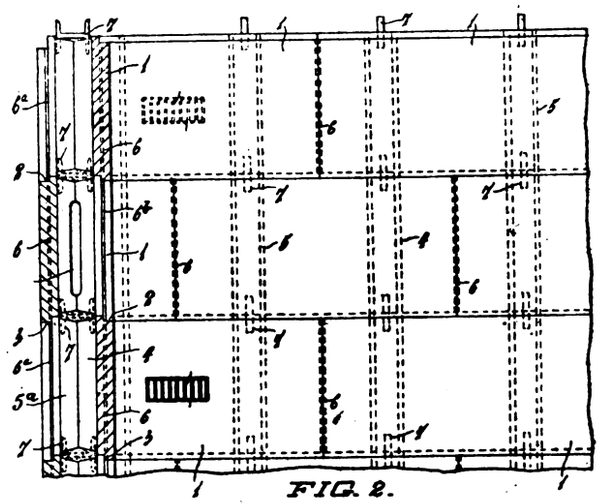


FIG. 2.

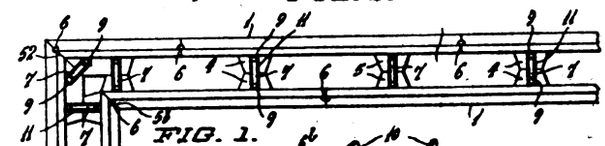


FIG. 1.

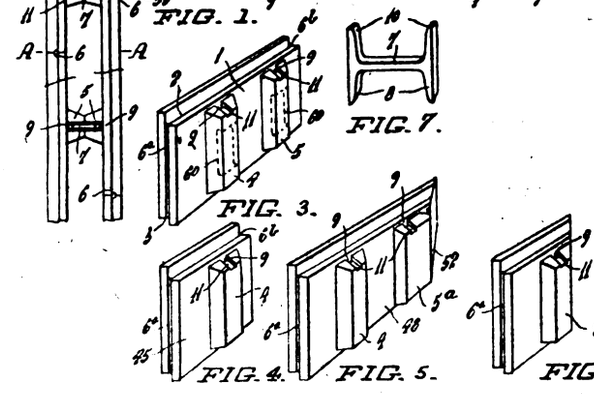


FIG. 7.

FIG. 3.

FIG. 4. FIG. 5. FIG. 6.

below, whereby an "H"-shaped key may be employed for tieing together simultaneously the studded portions of the inner and outer slabs of two adjacent courses. Fig. 1 is a plan of a wall. Fig. 2 is a sectional elevation on line A—A, fig. 1. Fig. 3 is a perspective view of a slab. Fig. 4 is a perspective view of a half-slab. Fig. 5 is a perspective view of a mitre-ended slab of an outer layer of slabs, fig. 6 is a perspective view of a mitre-ended half-slab, fig. 7 is a perspective view of a key, fig. 8 is a perspective sectional view of a mould, fig. 9 is a plan of the mould, fig. 10 is a transverse sectional elevation of the mould on line B—B fig. 10, and fig. 11 is a perspective sectional view of a mould for making mitred slabs. The slab 1 is made in any desired size and thickness, the upper and lower edges having rebates 2 and 3 respectively. Half-studs 4 and 5 are cast integral

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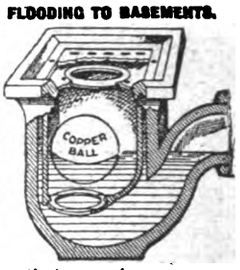
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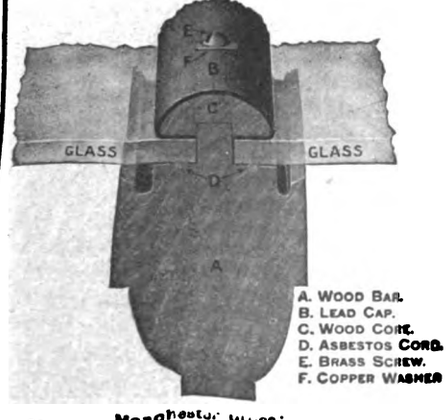
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with and strengthen each slab 1, and the half-studs of one layer of slabs are united to the half-studs of an opposing layer of slabs by a layer of cement, and the edges of the blocks are united by cement, which is poured down holes 6 formed by making grooves 6*a* and 6*b* in the ends of the slabs. The half-studs of opposing slabs are further united by metal keys 7 made "H"-shape, as shown in fig. 8. The lower members 8 of the key are inserted in recesses 9 formed in the upper ends of the half-studs 4 and 5 and secured therein by cement. The upper members 10 of the key 7 are inserted in recesses formed in the lower ends of the half-studs 4 and 5 and corresponding to the recesses 9, cement being used as before to secure the key to the slab. Grooves 11, leading from the recess 9, are formed in the ends of the studs to receive the cross-bar of the key 7. When the members 8 and 10 of the keys are inserted in the recesses 9 as described, the opposing or inner and outer layers of slabs are united together, and the superposed courses of slabs are also united by the keys. The slabs are cast in a mould shown in figs. 8 and 9, consisting of a base 16 and a frame made in two parts, 17 and 18. The half-

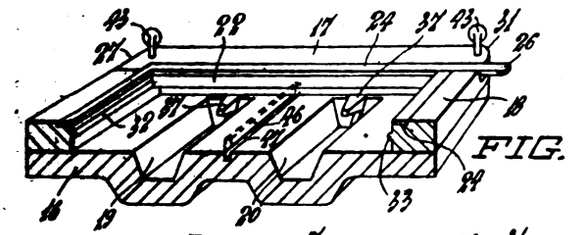


FIG. 8.

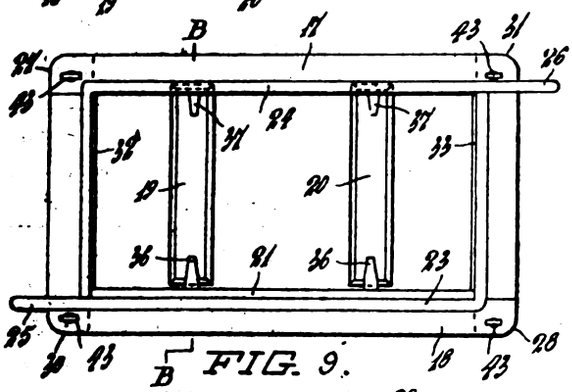


FIG. 9.

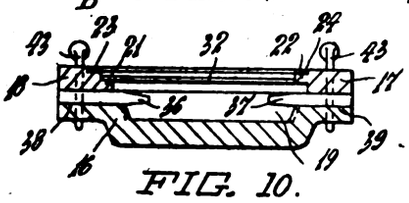


FIG. 10.

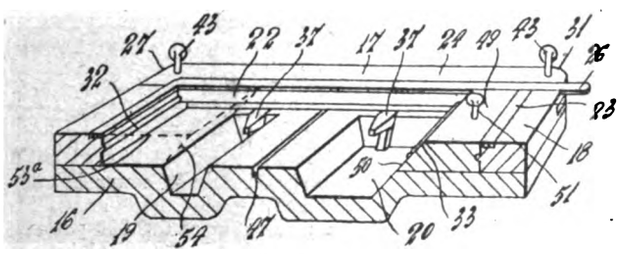


FIG. 11.

studs 4 and 5 are formed by the recesses 19 and 20. The rebates 2 and 3 on alternate faces of the slab are formed by means of the fillet 21 and the step 22 respectively forming part of the frame. When the frame is made of wood the upper inner edges are stiffened and strengthened by iron plates or bars 23 and 24, the ends of which project beyond the ends of the frame and form handles 25 and 26. The diagonally opposite corners 27 and 28 of the parts 17 and 18 respectively of the frame are rigid, and the other diagonally opposite corners 30 and 31 are dove-tailed or detachably connected together so that the frame can be opened out by grasping the handles 25 and 26 and by pulling the parts 17 and 18 laterally asunder at the corners 30 and 31. The beads 32 and 33 form the grooves 6*a* and 6*b* in the respective ends of the slabs. Prints 36 and 37, consisting of tapering fingers, are held in grooves 38 and 39 formed in the upper face of the base 16, and the prints project into the ends of the recesses 19 and 20 to form the recesses 9 in the ends of the half-studs 4 and 5. When the casting is sufficiently dry, the pegs 43 are withdrawn, the parts 17 and 18 pulled apart laterally, thereby leaving the casting on the base 16, which is removed by turning the mould over. The prints 36 and 37 remain in the casting, and are removed after the base has been removed from the casting. The slabs 1, after naturing by further drying, are laid in courses with their ends butting together and with the rebated edges of one course of slabs taking into the rebated edges of the next course. Liquid cement or the like is poured into the holes 6, and a layer of cement or the like is applied to the rebated edges of the slabs and to the opposing faces of the half-studs. The keys 7 are placed in the recesses 9 and floated around with cement. When half-slabs 45, as shown in fig. 4, are to be made, a stop 46, consisting of a vertical thin metal plate or the like, is placed in a groove 47 formed in the base 16 (see fig. 9). The plate extends across the mould and divides the casting into two half-slabs. When mitre-ended slabs 48, as shown in fig. 5, and at the angle of the wall in fig. 1, or mitre-ended half-slabs are to be made, a block 49, shown in fig. 11 and having a face 50 at an angle of 45° to the base 16, is held in position by pins 51. The mitre end 52 (see fig. 5) of the outside layer of slabs is then formed by the face 50, and the half-stud has the form 5*a*. The mitre end 53 (see fig. 1) of the inner layer of slabs or half-slabs is formed by a block 53*a* shown by dotted lines in fig. 11. The face 54 has an angle of 45° to the base 16. —Feb. 21, 1917.

PATENT SPECIFICATIONS.

Selected by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

No. 101,553.—Sept. 21, 1916 (prior date under International Convention Sept. 21, 1915).—C. I. Hoover and W. F. Benton, Ford, Armstrong, Penn., U.S. Runners for grinding plate glass.

104,526.—March 1, 1916.—Harry Jackson, 39 Newhall Street, Birmingham. Construction of cottages and other buildings and of reinforced concrete slabs to be used in the same.

104,533.—March 6, 1916.—C. O. Bastian, 32 The Avenue, Brondesbury Park, N.W.; and H. H. Berry, 86 Newman Street, Oxford Street, W. Incandescent fire or imitation fire or luminous body for domestic fireplaces, stoves, grates, or the like.

104,579.—April 26, 1916.—E. J. Lane, 23 Gascoyne Road, South Hackney. Construction of joint for wooden buildings and the like.

104,581.—Oct. 30, 1916.—H. G. Glanville, 256 Balsall Heath Road, Birmingham. Vacuum cleaners.

104,592.—May 25, 1916.—B. H. Ziehler, 30 East Fifth Street, Dayton, Ohio. Recording locks.

104,595.—March 23, 1916.—E. O. C. Howells, Haynstone, Stoke Park, Coventry. Compositions of concrete or artificial stone for blocks and the like.

104,596.—June 6, 1916.—C. F. Curtis, Gwyn Street, Alltwen Hill, Pontardawe, South Wales. Plastering material for walls, partitions, ceilings, floors, and the like.

104,597.—June 8, 1916.—Thomas Quinn, 7 Slocum Place, Brooklyn, King's County, New York, U.S.A. Adjustable faucet holder.

104,548.—March 10, 1916.—H. W. Gould and A. P. Florence, 20 Newman Street, Oxford Street, W. Water circulating apparatus for hot-water circulating systems.

104,632.—Aug. 7, 1916.—Harold Gibson, 146 Victor Road, Penge. Joint or coupling for wood.

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104,551.—March 14, 1916.—J. B. Griffith, "Strathmore," Bramhall Lane, Bramhall, Stockport. Reinforced concrete beams.

104,558.—March 20, 1916.—John Higginbotham, 6 Belgrave Crescent, Stockport. Water waste preventers for flushing purposes.

104,665.—Jan. 6, 1917 (prior date under International Convention May 23, 1916).—C. E. Pickard, 26 Jackson Street, Northcote, Victoria, Australia. Gas economising device for use with cooking stoves and burners.

Any of the above specifications may be obtained from J. D. Roots.

VARIETIES.

MR. KILBRIDE, of Springtown, Granard, has been appointed an assistant county surveyor of Cavan.

MR. CHARLES ROPER, builder, of Ipswich, who died on January 15, left £23,566.

MR. EDWARD BERNARD PIPER, builder, of Leicester, left £22,597.

MESSRS. PETTERS, LTD., of Yeovil, are making arrangements for the erection of new works at Yeovil for the manufacture of motor ploughs and agricultural tractors.

MR. C. HINCHCLIFFE, of Slaithwaite, has been appointed surveyor to the Penistone Urban District Council in succession to the late Mr. J. E. Swift.

MR. HOWARD V. SNOOK, the surveyor of the Haslemere Urban Council, is taking up a commission in the Devon Regiment (Labour Battalion).

THE Liverpool City Council has confirmed the decision not to hold an autumn exhibition at the Walker Art Gallery this year.

MR. J. S. HURST, C.E., formerly assistant surveyor of Bridlington, and now surveyor of Southwold, has been gazetted second-lieutenant of the Devonshire Regiment.

MR. WILLIAM N. CROWHURST, builder, of Richmond, Surrey, whose will has just been proved, left personalty valued at £22,114.

THE business of J. & W. B. Smith, of Farringdon Street, London, E.C., makers of lighting and sanitary appliances, has been registered as a private limited company. Mr. Frederick Watkinson continues to direct the business.

THE arrangements for the foundation of a British trade bank are practically completed. The scheme for its formation was entrusted by the Government to Lord Faringdon, who presided over the committee formed to take into consideration the defence and promotion of British trade.

THE Plans and Sewerage Committee of the Aberdeen Town Council have recently passed twelve sets of plans which included additions to shipbuilding yards at Footdee, Torry woollen works at Berryden Road, and the electricity sub-station in York Street. The other plans had reference to alterations and additions to existing premises. The estimated value of the new property amounts to £4,000.

THE Ministry of Munitions has issued an Order restricting the purchase, sale, and use of lead in any form, including white lead, lead oxides, alloys, compounds, and manufactures of every kind. Monthly returns of lead in stock, unless the quantity in the previous month has not exceeded a hundredweight, are to be sent to the Director of Materials, Hotel Victoria, Northumberland Avenue, from whom also licences to purchase or use lead must be obtained. The Order fixes the maximum prices for lead in its various forms, and cancels the Order of February 2, but not action taken under it.

ON Easter Day at the morning service at Wighill (near Tadcaster) Church, a stained-glass window in memory of the late Lord and Lady Hawke, of Wighill Park, given by their children, was unveiled by Lord Hawke, and dedicated by the Vicar, the Rev. C. Daly Atkinson. The window has two lights, in which are represented respectively St. Aidan and St. Margaret of Scotland. The artist is Mr. Whall, of London, and this window is a very happy specimen of his work. The window is a fitting addition to this beautifully restored late Norman church.

THE Conciliation Board for building trades on the Tees-side has issued an award under which bricklayers, joiners and stonemasons are awarded an additional war bonus of ½*d.* per hour as from May 1, and a further ½*d.* per hour as from June 1, making the wages for joiners and bricklayers 1*s.* per hour, and for stonemasons 11½*d.* Machinists' wages have been fixed at 42*s.* per week, plus 4*s.* war bonus, and sawyers 39*s.* 6*d.*, plus 4*s.* war bonus. The North-East Coast engineers' ballot on the Committee on Production's award of 2*s.* advance in wages has resulted in a majority in favour of acceptance. The vote was not large, and the figures will in due course be laid before the district delegate meeting.

THE death took place on Monday last, with tragic suddenness, of Councillor Chas. Whiteley, J.P., Clitheroe House, Ripponden, Chairman of Soyland Council. He was going to Halifax on business, and while waiting for a tram in Wharf Street, Sowerby Bridge, about two o'clock, he collapsed. He was in conversation at the tram station with Mrs. W. Bottomley, Ripponden, when, without any apparent illness, he fell, and death seemed to take place at once. Thus a second time within two years Soyland Council has lost its chairman by sudden death. Councillor Whiteley succeeded Councillor W. H. Crawshaw, who died under almost similar circumstances, in July 1915.

THE conversion of the building which was being erected by the Hull Education Committee for a girls' secondary school into a naval and military hospital is approaching completion, and arrangements are being made for the opening ceremony, which is to be performed by Field Marshal Viscount French on Sunday, April 15. Her Majesty Queen Mary laid the foundation stone of the school in June 1914, and a fine building of brick and stone was being erected behind the Hull Training College on the Cottingham Road, at an estimated cost of £20,000, when, about a year ago, work was suspended for the duration of the war.

A VERY extensive group of buildings is being built at Edenderry, King's County, for the Rev. P. Murphy, P.P. It comprises a very large church and extensive convent. New schools have also been finished some time ago. The church is one of the largest in the diocese. It is about 140 feet long and about 65 feet wide, and exceptionally commodious, being capable of seating a very large congregation. The materials used are local limestone, with dressings of Tullamore limestone from Messrs. Kennedy's quarries. The convent, for a community of about twenty-four of the Order of St. John of God, is in keeping. The style is Romanesque, and, when finished, will be a very imposing group of buildings. The architects are Mr. Anthony Scott, M.S.A., and Professor W. A. Scott, M.S.A., and the work is being carried out by Mr. J. Coffey, building contractor, Midleton, Co. Cork.

AT Scarborough the historic building known as King Richard's House, Sandside, Scarborough, has been sold by public auction for £740. The premises were purchased a few years ago by the late Mr. E. Boolt Jones, of Manchester, who restored them, and during late years they have been visited by many hundreds of people. Mr. Boolt Jones perished when the "Lusitania" was sunk. The new purchaser is Mr. Burrows, who has acted as manager of the premises. The purchase includes the freehold property and the antique furniture therein. King Richard visited the house on June 30, 1483, and stayed there until July 11. The house overlooks the harbour, is in a capital state of preservation, and retains many of its ancient characteristics, such as the mullioned open windows, opening on every side, and the ornamented ceilings and cornices. In years past the building stood so near to the sea that the waves touched its walls.

THE Abingdon Town Council having applied for sanction to borrow money to purchase land in the parish of Sutton Wick for the purposes of sewage disposal, a public inquiry on behalf of the Local Government Board was held by Mr. A. G. Drury, M.Inst.C.E. The Town Clerk stated that the extension of the sewage farm had become necessary in consequence of the Farm Committee being unable to deal with a large trade effluent discharged into the sewer by the Pavlova Leather Syndicate. The effluent had grown in volume until it had reached a maximum of 600,000 gallons in twenty-four hours. The Corporation had entered into a provisional agreement with the company to acquire 42 acres on the north side of the farm at £75 per acre. Roughly, they were asking for sanction to borrow £4,000, but instead of raising the money now, they had agreed with the owners to pay interest on the purchase money and complete the purchase within a certain period after the conclusion of the war. Details were given of what the Pavlova Company had agreed to do. The scheme was opposed by Mr. Andrew Walsh on behalf of General Bailie, the owner of the Caldecott Estate, which is close to the proposed site. It was contended that the disposal of an offensive trade effluent would be a serious nuisance to the residents at Caldecott and the vicinity, and it was suggested that another piece of land (36 acres) adjoining the farm, but more remote from Caldecott and the town, should be substituted.

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THE
Architect and Contract Reporter.
FRIDAY, APRIL 20, 1917.

EDITORIAL NOTICES.

The Editor will always be pleased to examine drawings or articles with a view to publication, but cannot be responsible for the safety of those sent, though every reasonable care will be taken. Contributors desiring payment should clearly state their wishes. No payment will be made until after publication, and a commission to prepare articles or drawings does not necessarily imply acceptance or approval.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

We have upon our staff a very eminent Barrister, who will be glad to answer in the columns of this paper any legal question that may be of interest to our readers. All letters must be addressed "Legal Adviser," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

TENDERS, ETC.

**** As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.*

PAPER RESTRICTIONS.

We are compelled in the national interests to economise in the use of paper. Many journals have in consequence been compelled to refuse all returns from the trade. We are endeavouring to obviate such a course, but would ask our readers to assist us by placing a firm order with their newsagent or bookstall clerk for delivery, or we are prepared to forward copies by post from these Offices, should there be any difficulty in obtaining a supply.

COMPETITION OPEN.

OLDHAM.—April 24.—The Health Committee are prepared to receive competitive designs for a proposed Nurses' Home at Westhulme from architects practising within the borough. A plan of the site may be seen and instructions and suggestions for the guidance of architects may be obtained on application at the Borough Surveyor's Office. Premiums of £15, £10, and £5 respectively will be awarded to the authors of the designs which are selected as first, second and third in order of merit. Competitive drawings with sealed letter containing name and address of the author to be delivered under cover at the Borough Surveyor's Office not later than 24th April next, endorsed "Design for Nurses' Home."

CONTRACTS OPEN.

BLACKLION (CO. CAVAN).—For the painting of the interior of Killinagh Church, Blacklion. The walls to be thoroughly cleaned and painted in oil and colour, three coats, and all the woodwork, except the roof, to be varnished with one coat of the best copal varnish. Mr. W. F. Elliott, hon. secretary, Corry, Blacklion.

CARRICK-ON-SHANNON.—Tenders are invited for sundry improvements to Newbridge Church, Corry, Carrick-on-Shannon, for the Very Rev. P. M'Morrow, P.P., V.F. Mr. J. J. McDonnell, 27 Chichester Street, Belfast.

DUBLIN.—Tenders are invited for the rebuilding of No. 7 Moore Street. Mr. Thomas F. Slevin, Stephen's Green North.

HOYLAKE (CHESHIRE).—April 28.—For the supply and delivery of the following for year ending March 31, 1918, for the Hoylake and West Kirby Urban District Council—viz., kerbs, channels, setts, cement concrete flags, macadam, chippings, Portland cement, stoneware sewer pipes, and timber. The Engineer and Surveyor, Town Hall, Hoylake. Mr. R. Williams, clerk, Town Hall, Hoylake.

LONDON, S.W.—April 30.—For supply of materials and works for re-surfacing a roadway with asphalte macadam for the Battersea Borough Council. Mr. W. Marcus Wilkins, Town Hall, Battersea.

RATHFRILAND (IRELAND).—April 21.—For erection of a shop and dwelling-house in Rathfriland, for Mr. Loughlin Downey. Messrs. D. M. Gracey, C.E., Newcastle, co. Down.

TREHERBERT (GLAMORGAN).—April 26.—For erection of a mechanical filter house at Fernhill, Treherbert, for the Rhondda Urban District Council. Mr. W. P. Nicholas, clerk, Council Offices, Pentre, Rhondda.

TENDERS.

BEDFORD.

For extensions at the electricity works, for the Electricity and Street Lighting Committee.

Tenders recommended for acceptance.

Switchgear, British Thomson-Houston Co., Rugby, £1,650.
Stores buildings, R. Jeakings, Bedford, £758 12s. 1d.
Feed pumps, J. P. Hall & Son, Ltd., Peterborough, £340.
Coal-handling plant, T. & T. Vicars, Earlestown, Lancs., £718.

COCKERMOUTH.

For painting in the Harris Park, at the waterworks, &c., for the Urban District Council.

BOYD & SONS (*accepted*)	£37 10 0

GRIMSBY.

For construction of piggeries, for the Town Council. Mr. H. G. WHYATT, M.I.C.E., borough engineer and surveyor.

C. Waddingham	£527 9 0
J. Borrill	521 0 0
Swaby & Walsham	515 0 0
Hewins & Goodhand, Ltd.	497 12 6
M. HOLMES & Co., LTD. (*accepted*)	431 13 0

All of Grimsby.

IRELAND.

For rebuilding bridges, for the Killarney Rural District Council.

Accepted tenders.

C. Singleton, Lower Giddagh Bridge	£450 0 0
J. Connor, Cottoner's River Bridge	98 0 0

SCOTLAND.

For alterations at the gasworks, for Kirkcaldy Town Council.

D. WILKIE (*accepted*)	£145 0 0

For alterations to the Philip Hall, for the Kirkcaldy Town Council.

J. SMART (*accepted*)	£150 19 8

SHEERNESS.

For work in connection with the Sheerness East borehole, for the Urban District Council.

BALL (*accepted*)	£2,596 0 0

SHEFFIELD.

For repairs to heating apparatus at Lodge Moor Hospital, for the Corporation.

ASHWELL & NESBITT (*accepted*)	£267 10 0

WALSALL.

For repairs to No. 3 ammonia washer at the Pleck gasworks, for the Town Council.

W. C. HOLMES & Co. (*recommended*)	£300 0 0

WALES.

For carrying out road widening and laying paving, kerb, and channel, with appurtenant works, at Church Street, Bedwas (Mon.), for the Bedwas and Machen U.D.C.

E. James	£292 0 0
J. Sutherland	270 0 0
G. WILKINS, Pontllanfraith (*accepted*)	258 0 0

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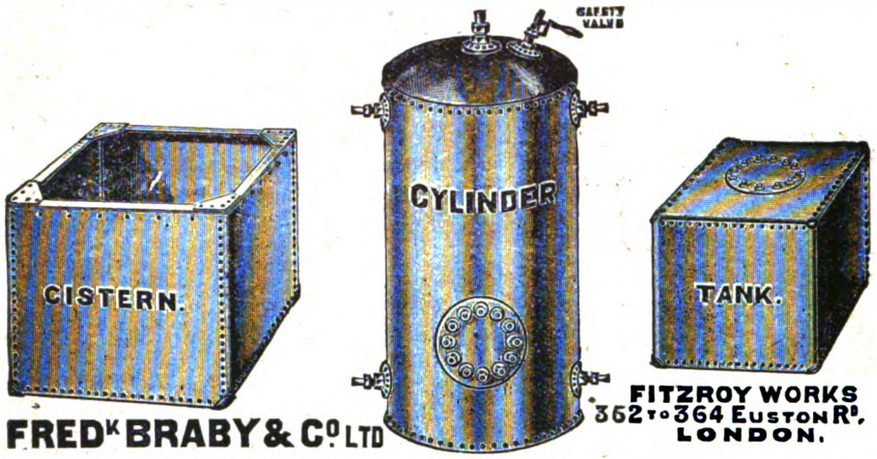
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THE INSTITUTION OF MUNICIPAL AND COUNTY ENGINEERS.

THE annual meeting of the Institution of Municipal and County Engineers (Eastern Section) took place on Saturday, 31st ulto., at the Council House, Hounslow, by permission of the Heston and Isleworth District Council, the chairman of which, Mr. A. A. Bergin, J.P., welcomed the members.

Mr. H. T. Wakelam, M.Inst.C.E., Engineer to the Middlesex County Council, was in the chair. He was nominated for the post in the coming year; Messrs. Hicks, Ealing Borough, and Webb, Hendon Rural District Council, were nominated as representatives to the Council.

Mr. J. G. Carey, Surveyor and Engineer to the Heston and Isleworth Urban District Council, submitted a paper on municipal work in his district, making especial allusion to the use of tarred clinker for road-making. The Council had a great accumulation of clinker from the dust destructor, and from 1906 to 1911 it was used for road-making and for levelling the playgrounds at the schools. Up to 1913 clinker mixed with tar was used for patching roads and paths, and the Council was so satisfied with its wear that a mixer was purchased, but owing to extensive road work in hand time could not be given to the manufacture of the material in anything like large quantities.

In 1915 the Council had accumulated a large stock of tarred clinker, and the Middlesex County Engineer, Mr. H. T. Wakelam, was asked to co-operate in the experiments, and he induced the Middlesex Council to assent in experimental resurfacing work on the county main roads in the Hounslow district.

The object of the proposed experiments was to demonstrate whether or not clinker obtained from the refuse destructor and stored in a large heap until nearly burned out could be utilised in its various grades, from palpable powder to a large size for the manufacture of a road surface material which will stand the test of time. The experiments, which it was hoped would have been completed last year, had unfortunately for various reasons to be postponed for a time.

In June 1916 the County and the local Council agreed on terms, and a contract was entered into with the Trinidad Lake Asphalte Paving Company for the laying of a series of experimental lengths of asphaltic macadam in the Staines Road, Hounslow. The first area was 2,250 square yards of 1¼-inch bituminous clinker wearing surface on a tarred clinker foundation; the second was 2,250 square yards of mixture 1¾ inch thick of bituminous clinker and sand wearing surface on a tarred clinker foundation; the third was 5,000 square yards 1¼-inch standard Trinidad Lake asphalte wearing surface on a tarred clinker foundation; and the fourth was 1,000 square yards single coat of bituminous clinker and Kentish rag, 2 inches thick, on the existing roadway. In connection with sections 1, 2, and 3, the contract provided for ten years' maintenance. Section 4 did not, but should this prove successful the benefits to be derived from it will be greater than those obtained from sections 1, 2, and 3. The work in section 3 had to be stopped owing to the clinker being found to contain an excessive quantity of tar, which caused too much flexibility in the foundations from the lopping and cracks resulting therefrom. This was proved by the fact that the asphalt surfacing appeared to be more where the clinker bottoming obtained from the skirts of the tarred heaps had been used. The latter had to be matured to a great extent by reason of its being in direct contact with the atmosphere. In September last it was decided to discontinue cold mixing and to instal a combined drying and hot mixing plant, but owing to the Ministry of Munitions retaining the plant until recently the work of erection was only now proceeding. The factors which determined the Council on the installation of the new plant were the following:—

1. The storage heap was burning for 75 per cent. of its area in March, but ceased in August owing to the heavy and continuous rains.

2. The inability of the destructor to supply sufficient clinker during the summer months.

3. The hot mixing of the material would lessen the amount of tar required, and it is hoped will admit of a lesser thickness than 4-inch consolidated bottoming being necessary. The ingredients for cold mixing were 1 cubic yard broken clinker, 12 gallons tar, and 7 lb. pitch.

4. The provision of a drying and hot mixing plant would be of great value owing to the fact that it will admit of uniform results being obtained, and will afford precise information as to the capabilities of the plant to deal with either larger or smaller quantity than can be obtained by present methods.

When the work of laying the Trinidad asphalt ceased about 1,500 yards of uncoated tarred clinker bottoming remained, which it was decided to coat in two sections, the tarred granite and tarred limestone chips. Unfortunately the results had not been satisfactory, which was mainly due to the heavy rains which fell and penetrated the material whilst it was being laid.

After the meeting visits were paid to the R.F.C. aerodrome at Hounslow Heath, by permission of the War Department, to inspect the lengths of tarred clinker road surface, and to the Council's electricity works.

GAS FUEL AND INDUSTRY.

IN the course of a paper on "The Application of Gas to Industry in War Time: Its National Importance," delivered before the Royal Society of Arts on April 18, with Sir George Beilby, Chairman of the Board of Fuel Research, in the chair, Mr. H. M. Thornton, M.I.Mech.E., said that at the beginning of the war "Numerous and complex problems faced the engineers and manufacturers of this country anxious to respond to the call for 'Munitions, more munitions, and still more munitions.' In many cases it was the problem of an immediate and enormous increase in normal production; in others, in many others, it was the problem of converting factories from the production of peace-time commodities to the turning out in vast quantities of war-time necessities. Whatever the circumstances, the demand was for increased productivity, multiplied many fold upon ordinary output, and this was required to be achieved with the utmost speed, and in the face of an already heavy withdrawal of labour for military requirements. Under the stress of this need of maximum quantity for minimum labour at maximum speed many a manufacturer requiring a heat-treatment process—and heat is a well-nigh universal necessity of manufacture—sought and found the solution to his problem in the use of gas."

An interesting example of factory-conversion was instanced by Mr. Thornton in the trade of the Midland manufacturing silversmiths, whose plant was readily adaptable, with the aid of gas, to the pre-heating of brass pellets to be stamped into fuse bodies. Mr. Thornton gave many other instances of processes connected with the heat treatment of metals in the application of gas to which great advances had been made since the outbreak of war, and prophesied that in the interests of economy no less than of efficiency gas was bound to become the industrial fuel of the future. Mr. Thornton also dealt with that increasingly popular feature of modern industrialism, the factory canteen. He showed that the consensus of expert opinion was in favour of an extension of this movement, and gave details regarding the management of canteens providing really cheap and good food for the workers, and yet run on a paying basis. He upheld the Committee on the Health of Munition Workers in their statement that "where gas in sufficient quantity is available gas cooking is usually preferred on account of cleanliness, efficiency, and saving of labour," and instanced, among several others, the case of a canteen in connection with one of the largest armament firms, where the gas apparatus provides early tea and hot milk for the night staff of 500 workers; breakfast for

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BRITISH PATENT SPECIFICATION.

Selected by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the completed specification.

No. 104,224 (3,108, March 1, 1916).—Improvements in or relating to the metal reinforcements of reinforced concrete constructions. William Marriott, of The Grange, Brinton, Melton Constable, Norfolk.—This invention relates to the metal reinforcements for reinforced concrete columns, piles, signal, telegraph and other poles, piers, beams, girders, and other reinforced concrete constructions of the kind in which the metal reinforcement comprises longitudinal rods or tubes which are spaced apart and connected together by means of bracings to

Fig. 1.

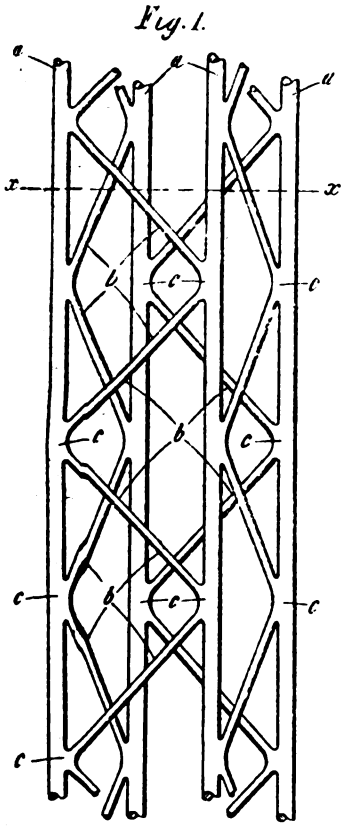


Fig. 3.

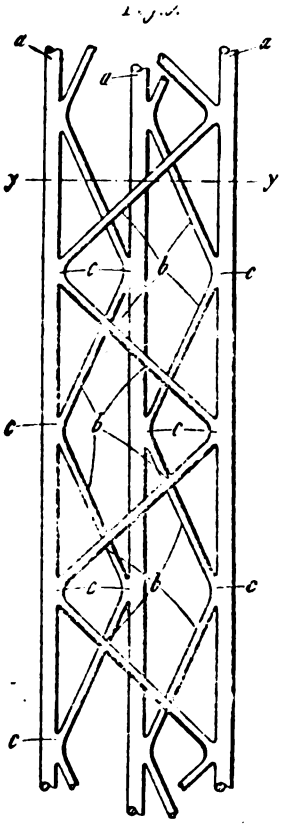


Fig. 2.

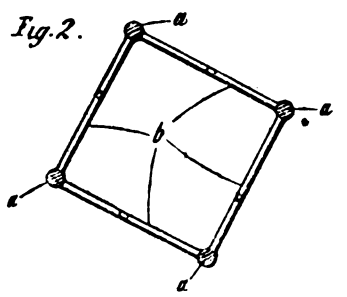
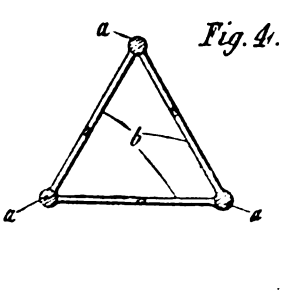


Fig. 4.



constitute an open work structure of box-like or hollow form. The metal reinforcement is built up of longitudinal rods or tubes, to which stays are connected by welding so as to constitute a metal structure of box-like or hollow form, the points of attachment to the longitudinal rods or tubes being preferably staggered with respect to one another, whereby great strength is imparted to the said structure. The stays are welded to the said longitudinal rods or tubes. Fig. 1 is an elevation showing a portion of one form of the improved reinforcement. Fig. 2 is a section taken on the line x—x of fig. 1. Fig. 3 is an elevation showing a triangular form of the reinforcement. Fig. 4 is a section taken on the line y—y of fig. 3. In figs. 1 and 2 four main rods *a* are provided, which rods are arranged longitudinally and parallel to one another or tapering to suit tapered posts or poles in such manner that the shortest straight lines connecting their axes would form a square or rectangular figure, the said rods being connected to one another by stays welded thereto. When the stays are secured to the longitudinal rods *a* a structure of boxlike or hollow form is obtained. Each stay or rod *b* is of zigzag or angularly undulatory form, and is welded at *c*, *c* to the longitudinal rods *a*. The undulatory rods are welded to the longitudinal rods so that the points of attachment of contiguous portions of adjacent undulatory rods are staggered or break-joint with respect to one another, as indicated in fig. 1. The undulatory rods together with the longitudinal rods form a series of consecutively reversed triangles on each side of the structure. In the form of reinforcement shown by figs. 3 and 4, three main rods *a* each circular in cross section are employed, disposed longitudinally and parallel to one another or tapering to suit tapered posts or poles forming a triangle in plan, and the said rods are connected to one another by zigzag or angularly undulatory rods *b* welded thereto at *c*. As indicated in fig. 3, the points of attachment of contiguous portions of adjacent undulatory rods are staggered.—March 7, 1917.

PATENT SPECIFICATIONS.

Selected by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

No. 18,136 (Dec. 29, 1915, prior date under International Convention July 5, 1915).—G. E. Maxfield and F. C. Wooster, General Hospital, Rockhampton, Queensland, Australia. Wood working machines.

102,922 (May 25, 1916, prior date under International Convention Dec. 22, 1915).—Charles Stewart, 29 Austral Avenue, Brunswick, Victoria, and Robert Gibson, of the Austral Manufacturing Company Proprietary, Ltd., Macaulay Road, North Melbourne, Australia. Bunsen gas tubes or burners.

104,759 (Mar. 27, 1916).—J. B. Mitchell, 56 Ludgate Hill, E.C., A. B. Shaw, 3 Pilgrim Street, Ludgate Hill, E.C., and William Taylor, 16 Clifton Road, Twickenham. Device for holding the shades, light reflectors or diffusers for lamps such as electric incandescence lamps.

104,725 (Mar. 13, 1916).—Metropolitan Gas Meters, Ltd., and J. D. Forster, Hyson Green Works, Nottingham. Locks and keys.

Any of the above specifications may be obtained from J. D. Roots.

THE Finchley Urban District Council have applied to the Local Government Board for permission to raise a loan of £14,000 for the extension of the electricity undertaking.

BOYLE'S latest patent "air-pump" ventilators, supplied by Messrs. Robert Boyle & Son, ventilating engineers, 64 Holborn Viaduct, London, have been employed at Messrs. Gwynne's Aviation Works, The Mall, Chiswick.

MAJOR HENRY MACAULAY, C.E., for thirty years borough surveyor of Kingston-on-Thames, has died at the age of eighty-eight. He was one of the pioneers of the Volunteer movement, with which he was associated from its inception in 1859. He was later given a commission as lieutenant in the now 3rd East Lancashire Regiment, and rose to the rank of major, retiring in 1887.

THE Supplement to the "Board of Trade Journal" of April 19 contains complete lists of articles which, according to the latest information received by the Board of Trade, are prohibited to be exported to various destinations from British India, Canada, New Zealand, South Africa, Newfoundland, Egypt, Malta, Cyprus, Mauritius and Ceylon. Copies may be obtained at a cost of 3*d*. (4*d*. post free), either from any bookseller, or from his Majesty's Stationery Office, Imperial House, Kingsway, London, W.C. 2.

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VARIETIES.

MR. A. M. DUNN, J.P., architect, of Branksome Park, Dorset, formerly of Wylam-on-Tyne, left estate valued at £35,816.

A COMMITTEE has been formed to carry out a proposal to raise a memorial to the Rev. Frank Swainson, late of St. Barnabas' Church, Holloway.

THE personal estate of the late Mr. William Henman, of Chelmsford, formerly practising as an architect at Stockton, Middlesbrough, and Birmingham, amounted to £16,746.

A DISCOVERY of great antiquarian interest has been made in the tower of King's Walden Church, Herts. A stone which has all the appearance of a "bowmen's stone" has been found under the ivy.

PRIVATE JAMES DOWD, formerly the well-known and very popular artist of the "Yorkshire Evening Telegraph," and more recently forming one of the brilliant band whose sketches appear in "Punch," has just had to undergo an operation, and is in a camp hospital in England.

ON Good Friday, after a long illness, the death of Mr. Joseph Greenaway occurred at his residence, 10 Southcote Road, Reading. He was well known for many years in Reading as an architect, and in connection with various organisations in which he was interested.

THE new hall in connection with the Tabernacle Welsh Congregational Church at Bridgend, Glamorgan, has been formally opened. The plans were prepared by Mr. P. J. Thomas, architect, and the contractor was Mr. Rees Jones, jun., of Coychurch. The approximate cost, including furniture, was £1,200.

THE funeral took place at Brighton, on the 11th inst., of Mr. Ernest Black, whose death occurred on the previous Saturday at the age of sixty-one. He was for nearly forty years one of the partners in the firm of Messrs. Clayton & Black, architects and surveyors, of Ship Street, Brighton, and although a man who took little part in public affairs, being of singularly unassuming and retiring habits, his death is regretted by a very wide circle of personal and professional friends.

SECOND-LIEUTENANT L. P. FIGGIS, of the Buffs, was severely wounded on Easter Monday. He is the son of Mr. T. P. Figgis, F.R.I.B.A. He was educated at St. Paul's School and the Wye Agricultural College. At the outbreak of war he joined the ranks, but was selected for a commission, and appointed as instructor in the Young Officers' Schools. He was a contributor to Captain Blake's book on "Knowledge for War," and has published a small book on "Elementary Tactics."

ST. PAUL'S CHURCH, Sheffield, with its broad nave and handsome pillars, has been greatly improved by the removal of the pulpit from the centre of the east end. Its pedestal has been cut down, and the pulpit re-erected on the left of the nave, with the lectern on the right. This has opened out the east end, and a cross has been placed on the new Communion table. New heating arrangements have been introduced, and from every point of view the church has been improved. It has quite distinctive features of its own, which make the interior much more pleasing than the exterior appearance.

THE late Mr. T. Hellyer Foord has bequeathed £2,000 to the Rochester cathedral authorities for restoration and other improvements, and a sum of £10,000 to the Corporation. Of this amount £2,000 is for refunding the sum paid by them for the purchase of the museum buildings, and the balance is for adding a new wing to receive the furniture, pictures and works of art from the testator's residences, Acorn House, Rochester, and Botley Grange, Hants, which are also bequeathed to the Corporation. The residue of the estate, which is likely to amount to a considerable sum, is to be devoted to the building of almshouses at Rochester.

CANON ASTBURY, presiding over the Easter vestry of Smethwick Old Church, mentioned that in a short time the bicentenary of Dorothy Parkes, the lady who built the church and endowed the benefice, would be commemorated. He thought something should be done to mark the event, and suggested that, in view of the great increase in the population in the district, a scheme of church extension should be inaugurated. Two proposals had been put forward, one for the erection of a new church and the other for the enlargement of the present building. He added that when Dr. Gore was Bishop of Birmingham he suggested that the present church be pulled down and a magnificent one built in its place. He (the speaker), however, thought there was so much sentiment attached to the Old Church that the residents would not agree to that.

THE Building Trades Central Advisory Committee (Operatives) recently appointed to advise and assist the Ministry of Labour upon matters affecting workmen in connection with the employment exchanges at their second meeting considered the following questions, amongst others: The recent decisions by the umpire with regard to the disallowance of benefit to men who refused jobs, either in another district or in a new trade; the recommendations of the Treasury Committee on the audit of unemployment benefit of associations having arrangements under Section 106 of the National Insurance Act, 1911, with special reference to the recommendation that vacant books should not be kept on licensed premises, and that standard vacant books returnable to the department every quarter should be used by all associations; the best means of expediting the placing of men sent from one town or district to another by the exchanges.

A STAINED-GLASS window has been recently placed in St. Mary's Church, Thatcham, Berks, in memory of the late Mr. A. R. Tull. The window consists of two lights. In the first, or right-hand, light is inserted the figure of St. Ann, the mother of the Blessed Virgin Mary, the child Mary, of the age of about ten years, standing by her side and holding a book in her left hand and a lily in the right. The figures in the second, or left-hand, light, represent the Blessed Virgin Mary herself, as a mother with her holy child, Jesus, in her arms. Beneath are the appropriate inscriptions, "Mater Dulcissima," "Virgo Purissima." On a brass plate under the window, bearing his coat of arms, is the inscription, "This window is dedicated to the glory of God and in memory of Albert Richard Tull, Esq., of Crookham, in this parish. Born 8th October, 1835, died 13th November, 1914; by his son and daughters." The two figures in the window are appropriate as representing the Blessed Virgin Mary, the patron saint in whose name the church has been dedicated, and St. Ann, her mother, to whom the chapel attached to the Crookham estate, and built by Lady Ann Danvers in 1504, is dedicated.

ONE of the oldest and most respected officials of the Lincoln Corporation passed away on the 7th inst., when the death took place of Mr. Frederick Taylor, the deputy surveyor. His courtesy, not less than his great ability and wisdom of judgment, had gained him many friends, and his loss will be widely regretted. Mr. Taylor was the son of a Lincoln builder, and was articled with Mr. W. Watkins, architect and surveyor, of Lincoln. Following this he went to Leicester for a time, and came back to this city to enter the office of the surveyor (Mr. J. J. Henderson) as architectural assistant, about 1880. His ability earned the confidence of his chief, and then of Mr. R. A. MacBrair, who entered on the duties of surveyor a few months after Mr. Taylor's arrival. Mr. Taylor was appointed deputy surveyor fourteen or fifteen years ago, and was chiefly responsible for the architectural work of the offices and for repairs on the Corporation properties. Mr. Taylor designed the conversion of the former National School into the present Corporation offices, with the additional departments off Saltergate, and also designed the abattoir, the buildings of the City Hospital, and, more recently, the sanatorium.

DUNFERMLINE Dean of Guild Court had before them on the 10th inst. several plans in connection with the development of the Rosyth suburb of Dunfermline. The most important of these was by the Scottish National Housing Co., Ltd., who asked authority to proceed with the erection of 1,000 houses. The legal assessor (Mr. John L. Jack) said that the capital value of the houses would be something like £400,000, and he questioned if an application of greater magnitude had ever come before any Dean of Guild Court in Scotland. The houses, it was explained by the Burgh engineer (Mr. P. C. Smith), were to be of six different types in order to meet the needs of the prospective classes of tenants. In one type of houses, he pointed out, the walls to the first floor were to be built of concrete slabs, with hollow between, and held together by means of ties. He objected to the strength of the blocks and the type of the ties, and he further objected to the absence of wash-tubs in houses which had no wash-houses. It was agreed to pass the plans, the Secretary of the company remarking that they would try to meet the Burgh Engineer's wishes, and that their architect would either convince Mr. Smith, or Mr. Smith would convince the architect on the point as to the concrete blocks. The same company were authorised to construct certain roads and sewers in connection with the same development. Two firms of wholesale and retail provision merchants were granted authority to proceed with the erection of blocks of shops and dwelling-houses.

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THE
Architect and Contract Reporter.
FRIDAY APRIL 27, 1917.

EDITORIAL NOTICES.

The Editor will always be pleased to examine drawings or articles with a view to publication, but cannot be responsible for the safety of those sent, though every reasonable care will be taken. Contributors desiring payment should clearly state their wishes. No payment will be made until after publication, and a commission to prepare articles or drawings does not necessarily imply acceptance or approval.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

We have upon our staff a very eminent Barrister, who will be glad to answer in the columns of this paper any legal question that may be of interest to our readers. All letters must be addressed "Legal Adviser," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

TENDERS, ETC.

*** *As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than* 2 P.M. *on Thursdays.*

PAPER RESTRICTIONS.

We are compelled in the national interests to economise in the use of paper. Many journals have in consequence been compelled to refuse all returns from the trade. We are endeavouring to obviate such a course, but would ask our readers to assist us by placing a firm order with their newsagent or bookstall clerk for delivery, or we are prepared to forward copies by post from these Offices, should there be any difficulty in obtaining a supply.

CONTRACTS OPEN.

BLAENAVON (MON.).—May 14.—For renovations and alterations at the workmen's institute, Blaenavon. Mr. J. Davies, secretary.

DOVERCOURT.—For the following works: (1) for rebuilding Parkeston Villas (three houses), Cliff Road, Dovercourt; (2) for making-up Seafield Road, Dovercourt; (3) for various works in connection with houses in Fronks Road and Seafield Road, Dovercourt. Mr. H. Steward Watling, F.S.A., architect, Dovercourt.

ENNISKILLEN.—May 5.—For repairs to the front of the Methodist church, Darling Street. Rev. Alex. Harris, The Manse, Brooke Street.

HALIFAX.—April 28.—For alterations to shop front at the borough markets, Halifax, for the Markets Committee. Deposit £1. Mr. P. Saunders, Town Hall, Halifax.

HALIFAX.—May 21.—The Highways Committee of the Halifax Corporation invite tenders for the execution of private improvement works in Hubert Street for the Halifax Corporation. Deposit £1. Mr. Percy Saunders, Town Clerk, Town Hall, Halifax.

HOYLAKE (CHESHIRE).—April 28.—For the supply and delivery of the following for year ending March 31, 1918, for the Hoylake and West Kirby Urban District Council—viz., kerbs, channels, setts, cement concrete flags, macadam, chippings, Portland cement, stoneware sewer pipes, and timber. The Engineer and Surveyor, Town Hall, Hoylake. Mr. R. Williams, clerk, Town Hall, Hoylake.

LONDON, S.W.—April 30.—For supply of materials and works for re-surfacing a roadway with asphalte macadam for the Battersea Borough Council. Mr. W. Marcus Wilkins, Town Hall, Battersea.

LUDDENDENFOOT (YORKS.).—April 30.—For the erection of burr wall on the Daisy Bank Road, for the Sanitary Committee. Mr. C. W. Moses, clerk to the Urban District Council, Luddendenfoot.

TENDERS.

CHESTER.

For equipping the workhouse with electric light, for the Guardians.
F. J. JONES & Co. (*accepted*) . . . £587 0 0

HULL.

For installation of a cooling plant, for the Hull Electricity Committee.
DEVONPORT ENGINEERING CO. (*accepted*) £5,100 0 0

IRELAND.

For supply of bevel wheels to the pumping station, for the Cork Waterworks Committee.
P. R. JACKSON & CO., LTD., Salford (*accepted*) £369 15 0

For laying out new graveyard at Kilbride, for the Antrim Rural District Council.
S. R. BOYD, Wheatfield Gardens, Belfast (*accepted*) £200 0 0

LONDON.

For supply and erection of one 1,000-kw. rotary converter, for the Poplar Borough Council.
GENERAL ELECTRIC CO., LTD. (*recommended*) £3,074 0 0

For supply of boilers at Town Hall, Highgate, for the Hornsey Corporation.
J. EVANS, 16 Red Lion Square, W.C. (*accepted*) £330 9 4

PLYMOUTH.

For drainage work at Lockyer Street, for the Corporation.
STEER & PEARCE (*accepted*) . . . £168 15 0

SCOTLAND.

For erection of new bridge at Kilfinnan, for the Lochaber District Committee.
D. LIVINGSTON, Fort William (*accepted*) . £217 16 1

For work of internal alterations at Philp Hall, Links Street, Kirkcaldy, for the Town Council. Mr. J. L. LUMSDEN, burgh surveyor.
J. SMART, 335 High Street (*accepted*) . £150 19 8

SOUTHAMPTON.

For supply of laundry machinery, for the Guardians.
SUMMERSCALES & Co. (*accepted*) . . £757 12 6

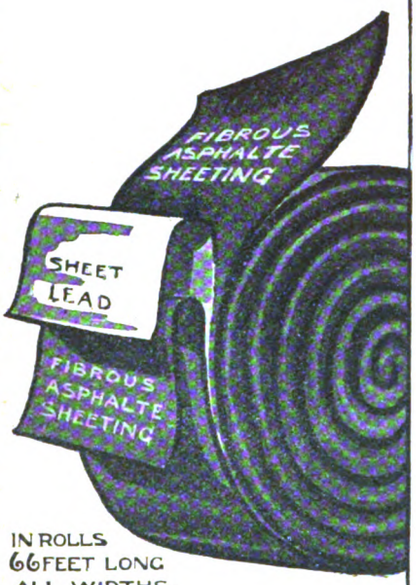
THE Admiralty propose building at Kinghorn a large number of dwelling houses for their Rosyth workers. Inquiries have been made regarding the water supply, &c., in the town, and it is expected sites for building will be chosen at both the east and west ends of the burgh.

THE pieceworkers in the engineering trade in Manchester district have received notice that the Government Production Committee had awarded them an advance of 7½ per cent. for the period of abnormal conditions, which have been brought about by the war. Applications were for a 15 per cent. advance, and originally the men were granted a 3s. weekly bonus. Against this award they successfully appealed.

ALDERMAN HART foreshadowed at a recent Derby Town Council meeting an increase in the near future in the Derwent Valley Water Board precept, now £44,000 per annum. This would be caused by the higher rate of interest payable on loans and by additional capital expenditure estimated at a million pounds in the construction of a new reservoir in order to meet the Sheffield demand for a greater supply of water. This work would occupy ten years, and the cost would be borne by the constituent authorities in the following proportions:—Derby 25, Leicester 35.72, Nottingham 14.28, and Sheffield 25 per cent. Repayment of the loan to be raised for the purpose would be spread over a long period.

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EXPERIMENTS ON EARTH PRESSURES.*

By PONSONBY MOORE CROSTHWAITE, B.A.I., M.Inst.C.E.

THE paper commences with a short account of Rankine's theory of earth-pressure, and the principles and assumption on which it is founded. Descriptions of former investigations are given in some detail—namely, those of the late Sir George Darwin, and Messrs. Goodrich, Wilson, Bell, and Meem. The author concludes that of the experiments made by these investigators to investigate the lateral pressure of earth, those in which model walls were used are of greatest value, but points out that if models are of any size the experimental difficulties are almost insuperable.

The author's experiments, a number of which are described and illustrated in the paper, were made by loading a plunger with known weights and measuring the penetration when the plunger had come to rest after the application of each weight. The materials were enclosed in an open bucket, and their weight was determined.

With those data the value of ϕ, the angle of internal friction, can be obtained from Rankine's well-known formula for the safe depth of foundations—

$$d = \frac{P}{W}\left(\frac{1 - \sin.\ \phi}{1 + \sin.\ \phi}\right)^2$$

when d denotes the penetration; P the pressure in pounds per square foot; and W the weight of the material in pounds per cubic foot.

If the formula is true, and the pressure be plotted against the penetrations, the resulting curve is a straight line, and ϕ as calculated from the formula should equal the angle of repose.

With sand, garden earth, and cinders and ashes the resulting curves are straight lines, but it was found that the value of ϕ varied with the state of aggregation of the material—*i.e.* whether it was lightly poured into the bucket, shaken in, or well pounded in. When the material was deposited in the bucket as lightly as possible the angle of internal friction was the same as the angle of repose, but with more consolidation the angle was much greater.

From these materials the author concludes that Rankine's theory holds, provided the proper angle of internal friction is used and not the angle of repose. If, however, this angle is used it would be necessary to introduce a factor of safety into the formula, for a wall designed without one would be theoretically just strong enough and no more. In Rankine's formula there is no factor of safety, and it is concluded that Rankine saw this, and used the angle of repose as covering the worst conditions that need possibly be provided for. The author's experiments show that, for the materials tested, work designed by Rankine's formula, using the angle of repose, would have a factor of safety of 2¼ to 4, and he considers that these are not unreasonable figures for such materials.

The experiments on clay give altogether different results, for instead of the penetration varying as the load, it varies as the square of the load, and the penetration curves are parabolas. These results, which were altogether unexpected, are completely confirmed by larger experiments carried out by Messrs. Coode, Matthews, Fitzmaurice and Wilson, and by Mr. McAlpine in New York.

The author is able to give no physical explanation as to why the penetration in clay should vary as the square of the load, but leaves it to the physicists. The law must be capable of some rational explanation, and, if true, it upsets all earth-pressure theories when they are applied to clay; for all accepted theories assume that the angle of internal friction is the same as the angle of repose, and that its value is independent of the pressure. It is suggested that the subject is worthy of further investigation, but that such could hardly be made by a private individual, for the work is tedious, each experiment taking from 24 to 48 hours. Moreover, if the investigation is to be properly carried out physical and chemical analyses of the clays will be required that could only be made in a well-equipped physical laboratory.

In connection with the earth slides experienced at the Panama Canal, it has been suggested that in clay and shale cuttings there is a critical depth beyond which the slides will not stand, and the author's experiments on clays clearly show that for these this must be the case. Where ϕ is independent of the pressure the depth of the cutting cannot affect the stability of the slope, but where the angle decreases with the pressure it is evident that eventually a depth will be reached beyond which its sides will not stand.

This decrease is clearly shown in one experiment on mud for which the angle for a pressure of 0.25 ton per square foot was 17°—15′, which decreased to 2° 10′ at a pressure of 1.25 ton per square foot, when it was little better than a liquid.

* Abstract of a Paper read at an ordinary meeting of the Institution of Civil Engineers.

CRYSTAL PALACE SCHOOL OF ENGINEERING.

THE 133rd award of certificates at the above school, now located at 18 Anerley Hill, took place on Wednesday, April 18, when Sir Maurice Fitzmaurice, President of the Institution of Civil Engineers, occupied the position of chairman, and in the course of his address to the assembled students he remarked that the vitality of the school was shown by the fact that it had existed for a period approaching forty-five years. A good number of students from that school he had had on his own staff, and he always found them valuable; moreover, his partner was formerly a student there. Sir Maurice incidentally mentioned that he had been an engineer for thirty-five years, and he had known some thousands of engineers in that time, but none had failed who really worked hard. Education told also in the long run, and those present would have the advantage of a good groundwork to start with. The acquisition of a foreign language, preferably French or Spanish, was moreover desirable, and at the end of next year everyone going in for examination at the Institution of Civil Engineers must show a good knowledge of one modern foreign language. He advised the students not to trust to their memories, but to make very full notes and to write a description of their work, which would be found a great advantage. He also urged them to be careful of their health, for those who took appointments abroad had need to be in good health. In conclusion Sir Maurice wished all those present every possible success in their future careers.

Mr. J. W. Wilson, the principal of the school, moved a vote of thanks to Sir Maurice for attending that day, and remarked that it was a great honour to have present on that occasion an engineer who held the highest position in the world.

Certificates were awarded to a number of students for first year's course in mechanical engineering, and the second year's course in civil engineering. The Wilson Premium for a paper read before the Crystal Palace Engineering Society on "Practical Road Making in the United Kingdom" was awarded to Mr. E. C. Wilson.

GAS AND HYGIENIC REFUSE DISPOSAL.

HYGIENIC refuse disposal is the subject of the April issue of "A Thousand and One Uses for Gas," published monthly by the British Commercial Gas Association, of 47 Victoria Street, Westminster, S.W. 1. The shortage of facilities for the collection, cartage, and destruction of domestic refuse has already reacted very unfavourably upon the public health, and will probably have serious results in the summer; and the proposal that refuse should be daily totally consumed by fire on the premises on which it is produced has very much to commend it from the hygienic point of view. "A Thousand and One Uses

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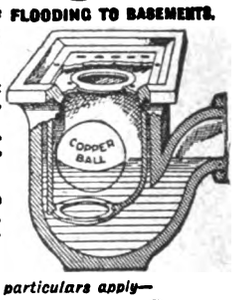
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for Gas" describes how this may be simply and economically accomplished with the aid of specially-designed gas apparatus or the coke furnaces commonly used for water-heating, and it is suggested that local authorities would find it profitable to offer some rebate to householders thus sanitarily destroying their domestic refuse.

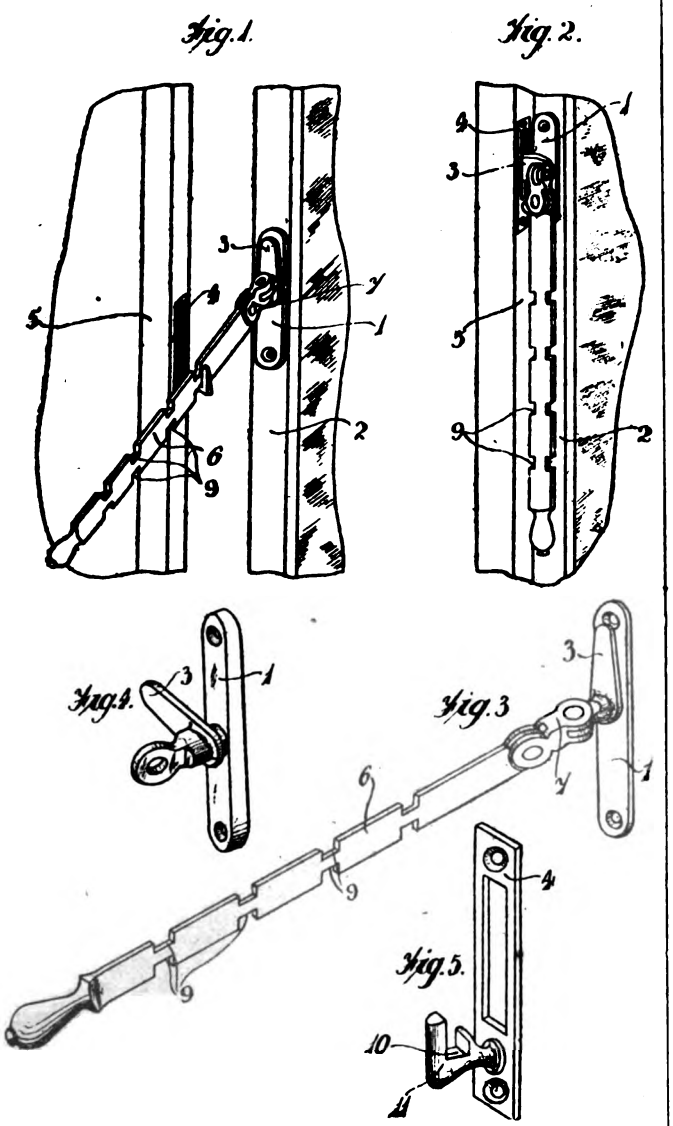
Householders, sanitary authorities, and others interested should write for a copy of this periodical, with its timely and practical suggestions. The Secretary will send a copy post free to any of our readers if this paper is mentioned.

BRITISH PATENT SPECIFICATION.

Selected by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the completed specification.

No. 104,271 (7,025, May 17, 1916).—Roland Powell, 2-5 Bartholomew Row, Birmingham.—Combined casement stay and fastener.—This invention relates to an improved combined casement stay and fastener of that class carried by the casement and designed to engage the frame for the purpose of locking the casement in its closed position, but in which the closed locking connection may be disengaged and the stay brought into operation for the purpose of retaining the window in a variety of positions. Fig. 1 is a perspective view showing the combined stay and fastener in use, the casement being in a partly open



position. Fig. 2 is a similar view with the casement closed. Fig. 3 is a perspective view showing the combination stay fastener removed. Fig. 4 illustrates the locking nose-piece and attachment plate removed. Fig. 5 shows the slotted catch plate. The combined stay and fastener comprises a back plate 1 which is secured upon the casement 2, a pivoted nose piece 3 upon the said back plate, which is adapted to engage with a slotted plate 4 upon the casement frame 5 when said nose piece is rotated, the slot being preferably at an angle so that, as the nose piece engages with it, it draws the casement tight. The casement stay member 6 engages with the nose piece through the medium of a link member 7, which is bifurcated at each end, one end engaging with the stay member and the other with a projection upon the nose piece, being pivoted at both places so that the stay may be moved angularly either in a vertical or horizontal plane as required. Each of the edges of the stay portion proper are formed with notches 9 at intervals, reducing the width of the stay at these points, which notched parts engage with a recess 10 in a bracket member 11. To lock the window in its closed position, the stay is given a partial turn, thus locking the nose piece in engagement with the slotted plate. The notches can be upon one edge only, but if on both edges the stay can be used equally well for either right- or left-hand windows.—March 7, 1917.

PATENT SPECIFICATIONS.

Selected by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

No. 104,898 (Mar. 17, 1916).—W. E. Muntz, 6 Breams Buildings, Chancery Lane, London. Spigot taps.

104,827 (Aug. 31, 1916).—Robert Lutin, 15 Carley Road, Southwick, Sunderland. Chimney cowls and ships' funnels.

104,835 (Sept. 26, 1916).—W. J. Burridge, Teignmouth, Hotham Street, St. Kilda, Victoria, Australia. Floor cramp.

104,843 (Nov. 9, 1916).—F. W. Mellowes and Herbert Foulston, Corporation Works, Corporation Street, Sheffield. Glazing.

104,594 (June 1, 1916).—G. J. Gibbs, 7 Lune Street, Preston, Lancs. Apparatus for water softening.

104,567 (Mar. 24, 1916).—H. L. Doulton, The Lambeth Sanitary Engineering Works, Lambeth, R. J. Pleace, 31 Voltaire Road, Clapham, S.W., and L. B. Williams, 50 St. Leonards Road, East Sheen. Mixing valves for hot and cold water.

104,650 (Nov. 4, 1916).—F. P. Reynolds, 12 Model Cottages, Penyard, Merthyr Tydfil, South Wales. Fastening for the attachment of cords to the sashes of windows and the like.

104,628.—Aug. 1, 1916.—L. R. Ferguson, 218 East Sedgwick Street, Philadelphia, U.S.A.; R. J. Wig, 2952 Newark Street, Washington, D.C.; and W. A. McIntyre, Ardmore, Montgomery, Penn., U.S.A. Means for controlling the operation of machines for mixing concrete and the like.

104,624.—July 19, 1916.—R. Y. Ames, 36 Broadway, Gidea Park, Essex; and B. J. Allen, Llangladure, Blythe Bridge, Stafford. Design and fixture of lavatories, sinks, washtubs, and the like.

104,630.—Aug. 4, 1916.—G. W. Holt, 5 Crown Terrace, Richmond, Surrey. Cowl or cap primarily intended for use with geysers and like heaters.

104,623.—July 18, 1916.—H. Bagnall, 3 West Bromwich Street, Oldbury, Worcestershire. Washer for the bolts or screws of corrugated roofing sheets.

104,783 (Mar. 20, 1916).—John Higginbotham, 6 Belgrave Crescent, Stockport. Water closet basin.

104,768 (Mar. 31, 1916).—R. W. Hobbs and H. A. Whiting, 796 Malvern Road, Armadale, Victoria, Australia. Morticing machines.

104,775 (April 8, 1916).—C. E. Blyth, cement manufacturer, Stockton, near Rugby, and Lister, Lister-Kaye, cement manufacturer, of Southam, Warwick. Method of and means for the transference of loose material.

104,786 (May 9, 1916).—G. G. Brodie, Eagle Foundry, Catherine Street, Aston, Birmingham. Domestic or kitchen range boilers.

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104,795 (May 25, 1916).—J. W. Haran, "Rosslyn," Station Road, Yardley, Birmingham. Metallic fabric or framework to be used in the construction of reinforced concrete floors, roofs, and the like.

104,721 (Mar. 11, 1916).—E. L. Pease, Hurworth Moor, Darlington. Heat interchanging apparatus, more particularly for use as radiators for heating buildings and the like.

104,823 (Aug. 7, 1916).—Alfred Farley, 81 Hindes Road, Harrow. Adjustable shelves for shop-window dressing.

104,917 (Mar. 22, 1916).—Oliver Beck, of Cassiobury Works, Watford, and The Van Kannel Revolving Door Co., Ltd., 62 New Broad Street, London. Sliding locking bolts.

104,918 (Mar. 22, 1916).—C. A. Carpenter, 4 Maidenhead Court, Aldersgate, E.C. Burglar alarm systems.

104,919 (Mar. 22, 1916).—William Paterson, India House, Kingsway, W.C. Water softening and purifying apparatus.

104,972 (May 29, 1916).—W. J. Lyons, Royal College of Science for Ireland, Upper Merrion Street, Dublin, Walter Conan, Portree, Ley Hey Park, Marple, Cheshire, and G. M. Meares, 16 Molesworth Street, Dublin. Keyless locks.

105,054 (Mar. 23, 1916).—E. O. C. Howells, Haynstone, Stoke Park, Coventry. Building blocks, slabs, tiles, and the like.

105,004 (July 19, 1916).—I. H. Parsons, The Croft, Kibworth Harcourt, near Leicester. Pendulum indicators for use with electric-bell systems or for other purposes.

Any of the above specifications may be obtained from J. D. Roots.

VARIETIES.

IT is proposed to erect at Nelson, Lancs, a new church.

THE floor of the ornamental lake at Littlehampton is to be grouted with cement, the cost of properly renewing the floor being too expensive to be undertaken during the war.

MR. E. GUY DAWBER, F.R.I.B.A., has removed from 22 Buckingham Street, Adelphi, to 38 Sackville Street, Piccadilly, W.

MAJOR G. R. LANE FOX, M.P., has presented to St. Luke's Church, Clifford, Yorks., a crucifix, six candlesticks, and altar hangings.

A DELEGATE meeting of the Amalgamated Society of Engineers was held at the London headquarters on the 21st inst. to consider the trade-card system and payment by results. The proceedings were private.

A PUBLIC meeting convened by the rector of the parish (Rev. Albert E. Lewis) has been held at Llanrug to consider the advisability of raising a memorial in the parish to local men who have fallen in the war.

HERR ERNST EBERHARD IHNE, the Kaiser's favourite and the architect of most of Berlin's modern official buildings, has died. He was, before the war, an Hon. Corresponding Member of the R.I.B.A.

THE "Wilson Premium" for the best paper read before the Crystal Palace Engineering Society during the past session has been awarded to Mr. E. G. Wilson for a paper on "Practical Roadwork in the United Kingdom."

THE Admiralty are about to extend their housing scheme at Lakfield Road, Gourock, N.B. Fifty cottages are now nearing completion, and it is proposed to build as many more.

MR. ERNEST JARDINE, M.P., stated recently at a meeting held at Nottingham that he intends to erect near Newark a sugar-beet factory capable of dealing with 1,000 tons of beet per day.

ARDROSSAN Town Council has received a reply from the Ministry of Munitions regarding the housing problem in the town. The reply states that the circumstances, as described by the Council, are not such as to justify the Minister in taking up the question of providing additional housing, as there is no evidence that the output of munitions of war is being impeded by the lack of houses.

MR. W. A. APPLETON has tendered to Mr. Neville Chamberlain his resignation of the position of Labour Advisor to the National Service Department. It is understood that Mr. Appleton desires to be relieved of the work, which he undertook at the Director-General's request in the first instance for one month, as he finds it difficult to carry on his other engagements; and, moreover, his health has suffered somewhat owing to the pressure of the work falling upon him. His resignation, it is further understood, has not yet been formally accepted.

AT the meeting of the Conway and Colwyn Bay Joint Water Supply Board, Mr. Bevan, in submitting the annual estimates, congratulated the board upon being able to reduce the water rate to 9*d.*, or 1*d.* in the pound, and he felt convinced that in ten years hence it would reach the vanishing-point. As the result of the war building operations had ceased, but he was convinced that when peace was declared a rosy dawn would ensue, when building operations in the district would assume gigantic proportions, with beneficial results to both the district and the board.

ON Saturday last the Passeggiata Archeological at Rome was inaugurated in the presence of the King's Lieutenant. This is the first step towards the establishment of a regular monumental area, which will be handed over to the town administration. It is the intention of the Government to form within Rome a monumental city, isolating the various forums and the Capitol. This plan would also mean that the whole Capitoline Hill will form part of the monumental city and the Caffarelli Palace, the seat of the German Embassy, which is placed in a conspicuous position on the Capitoline, would be taken over by the State.

THE death occurred at Brighton on Friday last of Sir John Howard in his eighty-seventh year. He was known for his philanthropy, and founded the Howard Charity and the Howard Convalescent Home at Brighton, where he resided. He was a member of the Institute of Civil Engineers, and author of works on the great Atlantic cables. Sir John Howard was appointed a director of the North British Rail- in 1899. He represented mainly the English shareholders of the company, and was very little known in Scotland. In business he was a contractor on a large scale. One of the extensive works on which he had been engaged was the big dock scheme at Seafield, Kirkcaldy, which was promoted by the Fife coalmasters and afterwards abandoned. Sir John appeared in the New Year's Honours' List last year.

AT a meeting of the Advisory Committee to the Board of Trade on Commerical Intelligence, Sir Albert Stanley presiding, it was reported that at the recent British Industries Fair, which owing to war conditions was restricted to the toy, fancy goods, pottery, glass, printing and stationery trades, the number of exhibitors was 444, as compared with 350 in 1916, and the number of separate visitors 15,000, as compared with 13,000 in 1916. Reports were presented on the arrangements which are in progress for the extension of the official representation of the United Kingdom trade throughout the British Empire. Over 700 firms have applied for interviews with H.M. Trade Commissioner for Canada, who is now in the United Kingdom on an official visit. The committee approved the arrangements made by the Board of Trade and the Foreign Office for special trade inquiries in Spain and Portugal and for the exhibition in various trade centres of samples of foreign goods which compete with British goods in important foreign markets. Proposals for the co-operation of the Board of Trade with associations of manufacturers for the investigation of oversea markets were also approved.

BEFORE the Chertsey Bench on Monday last the Director of Public Prosecutions summoned Messrs. Harrison, builders, Englefield Green, Surrey, and Howell J. Williams, Ltd., builders, Bermondsey, London, for carrying on building and constructional work at Bishopsgate House, Englefield Green, without having a licence from the Ministry of Munitions, contrary to Regulation 18 of the Defence of the Realm Act. Gerard Jurgens, King's House, King Street, London, Dutch margarine merchant, owner of Bishopsgate House, was summoned for aiding and abetting. Mr. H. T. Roome, for the Ministry of Munitions, said that an inspector who was sent down on January 8 last found that work of a costly description was being carried on at the house, which Mr. Jurgens had purchased for £17,500. The value of the work done was estimated by an inspector of the Ministry at £1,400. Mr. Crawford, for Messrs. Harrison and Mr. Jurgens, said the former thought the regulations applied to constructional works only, and Mr. Jurgens had no knowledge that such a large amount of work was being done. Mr. Cecil Whiteley, for Messrs. Williams, said they had refused private work valued at hundreds of thousands of pounds, and simply carried out a little finer work at Mr. Jurgens's request to the extent of £350. Jurgens was fined £50, Messrs. Harrison £30, and Messrs. Williams £20.

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THE
Architect and Contract Reporter.
FRIDAY, MAY 4, 1917.

EDITORIAL NOTICES.

The Editor will always be pleased to examine drawings or articles with a view to publication, but cannot be responsible for the safety of those sent, though every reasonable care will be taken. Contributors desiring payment should clearly state their wishes. No payment will be made until after publication, and a commission to prepare articles or drawings does not necessarily imply acceptance or approval.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

We have upon our staff a very eminent Barrister, who will be glad to answer in the columns of this paper any legal question that may be of interest to our readers. All letters must be addressed "Legal Adviser," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

TENDERS, ETC.

**** As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.*

CONTRACTS OPEN.

BLAENAVON (MON.).—May 14.—For renovations and alterations at the workmen's institute, Blaenavon. Mr. J. Davies, secretary.

ENNISKILLEN.—May 5.—For repairs to the front of the Methodist church, Darling Street. Rev. Alex. Harris, The Manse, Brooke Street.

HALIFAX.—May 21.—The Highways Committee of the Halifax Corporation invite tenders for the execution of private improvement works in Hubert Street for the Halifax Corporation. Deposit £1. Mr. Percy Saunders, Town Clerk, Town Hall, Halifax.

KEIGHLEY.—May 9.—For erection of a recreation hall at the Fell Lane Auxiliary War Hospital, Keighley. Mr. J. N. Clarkson, War Hospital Building Committee, 40 North Street, Keighley.

WELLS (SOMERSET).—May 14.—For rebuilding wall to bank supporting the Castle Cary to Somerton main road at Lovington, for the Somerset County Council. Deposit £1 1*s*. Mr. G. R. Folland, acting county surveyor, Wells.

WESTHOUGHTON (LANCS.).—May 14.—For erection of 100 type "A" houses for the accommodation of munition workers, for the Westhoughton Urban District Council. Deposit £1 1*s*. Mr. T. Partington, clerk, Town Hall, Westhoughton.

TENDERS.

CHESTER.

For equipping the Workhouse with electric light, for the Guardians.

F. J. JONES & Co. (*accepted*) . . . £587 0 0

DARTFORD.

For cleaning and painting work at the Long Reach Hospital, for the Metropolitan Asylums Board.

W. & C. FRENCH, Buckhurst Hill (*accepted*) £302 3 3

HULL.

For supply of a grab for loading coal, ashes, &c., for the Electricity Committee.

PRIESTMAN (*accepted*) £1,800 0 0

IRELAND.

For rebuilding sea walls and subsidiary works on the road from Strangford to Ardglass, for the Down County Council.

S. R. BOYD, 6 Wheatfield Gardens, Crumlin Road, Belfast (*accepted*) £580 0 0

For the construction of a new main sewerage work for the town of Frenchpark, for the Castlerea Rural District Council. Mr. G. Mulvany, M.I.C.E., engineer, Roscommon.

H. CASSIDY, Castlerea (*accepted*) . . £1,100 0 0

LONDON.

For cleaning and painting work at the Western Hospital, for the Metropolitan Asylums Board.

L. KAZAK, Belvedere, Kent (*accepted*) . . £136 0 0

For cleaning and painting work at the Grove Military Hospital, for the Metropolitan Asylums Board.

A. H. INNS, 7 Devonshire Square, Bishopsgate (*accepted*) £114 0 0

THE Supplement to the "Board of Trade Journal" of April 26 contains complete lists of articles which, according to the latest information received by the Board of Trade, are prohibited to be exported to various destinations from the Straits Settlements, Hong Kong, Nigeria, Gold Coast, Jamaica, Barbadoes, Trinidad and Tobago, and British Guiana. Copies may be obtained at a cost of 3*d*. (4*d*. post free), either from any bookseller, or from H.M. Stationery Office, Imperial House, Kingsway, London, W.C. 2.

AT their last meeting the Midhurst Rural Council reversed their decision not to repair the Market Square, a resolution being proposed by Colonel Wyndham that the motion passed on October 11, 1912, be rescinded and that the offer of the Midhurst Town Trust, dated February 26, to contribute towards the repair of Market Square be accepted. The matter had been considered by the Town Trust, who agreed to pay a certain amount towards the work to be done by the Council. This motion was passed, and the suggested course was agreed to.

MR. E. BURRELL BAGGALLAY states that the Marlborough College war memorial will take the following form:—(1) A cloister on the south side of the chapel on the walls of which the names of those who have fallen will be inscribed. (2) The education at Marlborough of sons of O.M.s who have fallen or who have been incapacitated in the war. (3) Any surplus will be applied for the establishment of an endowment fund or will be used for such other purposes as the committee of the Marlburian Club may recommend. It is hoped to raise £20,000, and donations may be sent to Mr. Baggallay at 1 Frederick's Place, Old Jewry, London, E.C.

COLONEL F. G. A. WIEHE on Sunday last unveiled a tablet placed in the façade of Chichester Memorial Hall, Sandgate, in memory of Lance-Corporal William Richard Cotter, East Kent Regiment, who was awarded the Victoria Cross in the spring of last year. The memorial bore an inscription describing the circumstances in which Cotter won his distinction. When his right leg had been blown off at the knee and he had been wounded in both arms, he made his way unaided for fifty yards to a crater, steadied the men who were holding it, controlled their fire, issued orders and altered the dispositions of his men to meet a fresh counter-attack by the enemy. For two hours he held his position, and only allowed his wounds to be roughly dressed when the attack had quieted down. It is officially recorded that his magnificent courage helped greatly to save a critical situation. Cotter was one of six brothers serving in the Forces.

THE Special Committee of the Corporation of Glasgow on Housing and General Town Improvement met in the City Chambers to consider the question of the type of houses to be erected on the ground belonging to the city in Garngad Road. Councillor Morton presided. The committee had before them plans prepared by the Master of Works showing various types of houses which could be built, and also a report and plans prepared by the advisory architects, Messrs. Watson & Keppie. It was agreed that two-apartment houses with scullery and bathroom, and three-apartment houses with scullery and bathroom, should be built, the two-apartment houses to be on the block system and the three-apartment houses to be on the balcony system. The question of whether shops could be provided was discussed, and it was decided that no such provision should be made. The City Engineer was instructed to prepare plans showing the details of the scheme.

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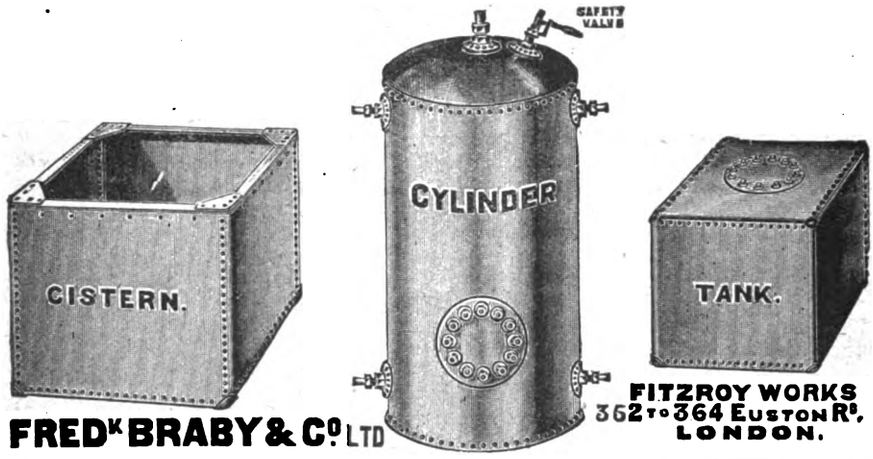
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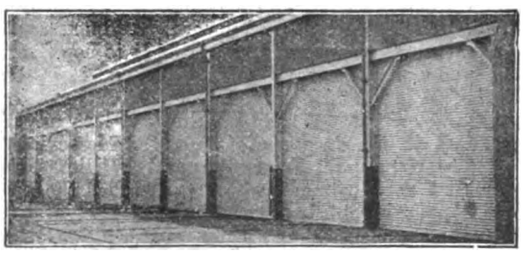


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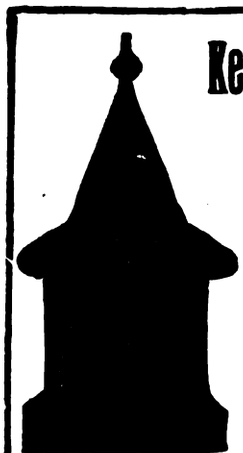
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THE LATE MR. ANDREW S. BIGGART.

THE "Glasgow Herald" announces the death, after an illness of over eight weeks, of Mr. Andrew S. Biggart, M.I.C.E., chairman of the firm of Sir William Arrol & Co., Ltd., bridge builders and engineers, Glasgow. Mr. Biggart was appointed chairman of the company in 1913, on the death of Sir William Arrol, but he had been associated with the firm for many years previously, and had been Sir William Arrol's right-hand man in all his most important contracts.

Mr. Biggart, who was one of nine sons, was in his sixtieth year. He was a native of Beith parish, Ayrshire, was trained as a mechanical engineer, and entered the service of the late Sir William Arrol early in life. When he was twenty-four years of age the firm obtained the contract for the erection of the Forth Bridge. In the construction of the bridge Mr. Biggart was closely associated with Mr. (afterwards Sir William) Arrol, acting as the firm's engineer and general manager all through the operations, and having many thousands of men under his control. He took a leading part in the arrangements which were made for dealing with the many new problems which had to be solved, and for the design and operation of the many new types of machine tools and appliances which were specially designed for the work of sinking the foundations and erecting the huge superstructure. On the completion of the Forth Bridge in 1890 he was assumed as a partner in the firm, and for many years he took the leading part in carrying out their contracts, including the steelwork of the Tower Bridge, London, the rebuilding of the Redheugh Bridge, Newcastle-on-Tyne, new bridges across the Clyde for the Caledonian Railway and Glasgow and South-Western Railway Companies, and bridges across the River Barrow and River Suir, Ireland, the widening of the Blackfriars Bridge across the Thames, and the large bridge over the River Wear at Sunderland (where the main span, weighing approximately 3,000 tons, was erected by overhang), and many other large structures of a similar character. The firm have had as many as half a dozen large bridges on hand at one time, as well as a great variety of structures of diverse kinds in steel and its combinations. During all this period the mechanical engineering department was rapidly developed, hydraulic and mechanical work of various kinds was carried out, including the design and manufacture of stoking and coal-handling plant for gasworks, and the department has designed and fitted up large installations in most of the principal gasworks at home as well as a large number abroad. In the course of this work Mr. Biggart was the inventor of many novel mechanical engineering appliances.

For many years Mr. Biggart advocated the principle of work being designed and carried out by skilled contracting firms, and shortly after joining Sir William Arrol & Co. a special designing department was introduced for the purpose of dealing with the design and construction of bridges, steel buildings, and structures of all kinds. This was developed to such an extent that now a large proportion of the work carried out by the firm is to their own design. The designing and carrying out of deep foundation work, in which caissons and cylinders were largely used, and which in most instances have been sunk under air pressure, has also been a speciality of the firm for many years. Hundreds of cylinders and caissons have been dealt with in this way and carried to varying depths, in several cases to over 100 feet below water level. In all this work Mr. Biggart took a leading part.

In private life Mr. Biggart took an active interest in philanthropic movements, while he was a governor of the Royal Technical College, Glasgow, and convenor of the Engineering Committee, president of the Glasgow University Engineering Society, a member of the Institution of Engineers and Shipbuilders in Scotland and of the Institution of Civil Engineers, and a director of the Scottish Temperance Life Assurance Company. As representing his firm he took an active part in the work of the Engineering Employers' Federation and the North-West Engineering Trades Employers' Association, and he served for a term as president of the latter body. He was awarded the "Railway Engineering" gold medal of the Institution of Engineers and Shipbuilders in Scotland for papers on the Tay Bridge, and at a later date the "Institution" gold medal for a series of papers on the Forth Bridge. He was the author of two papers on the Forth Bridge read before the British Association, a paper before the Institution of Mechanical Engineers on stoking plant, and also an exhaustive communication to the Institution of Civil Engineers on wire ropes. He took a very close personal interest in the Biggart Memorial Cripple Children's Home at Prestwick, which was founded by him and his brothers in memory of their parents and two brothers, and his practical support was given to many other philanthropic and charitable schemes in Glasgow and the West of Scotland. Mr. Biggart, who is survived by his wife, six sons, and three daughters, was for a number of years an elder in Ibrox United Free Church, and later he was associated with Sherbrooke United Free Church.

BRITISH PATENT SPECIFICATION.

Selected by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the completed specification.

No. 103,886 (2,941, Feb. 28, 1916).—Improvements in buildings constructed or faced with concrete slabs.—Peter Fyfe, of No. 23 Montrose Street, Glasgow, Chief Sanitary Inspector.—This invention relates to structures in which blocks or slabs of concrete are employed having

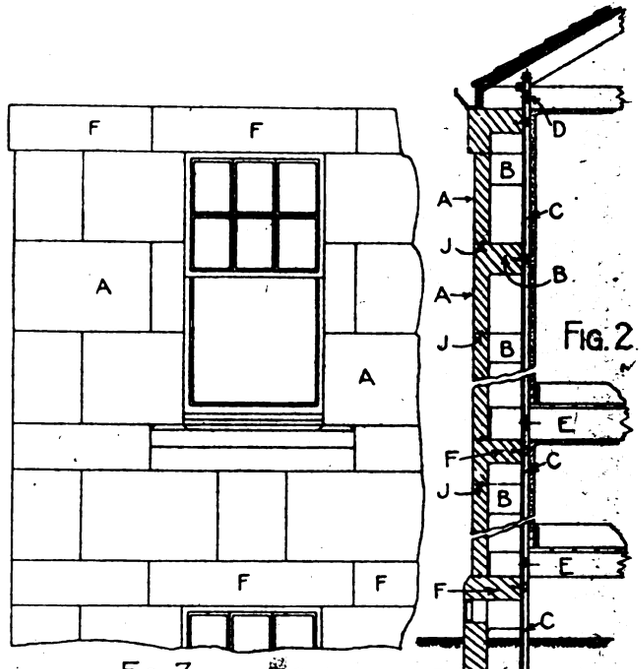


FIG. 2.

FIG. 3.

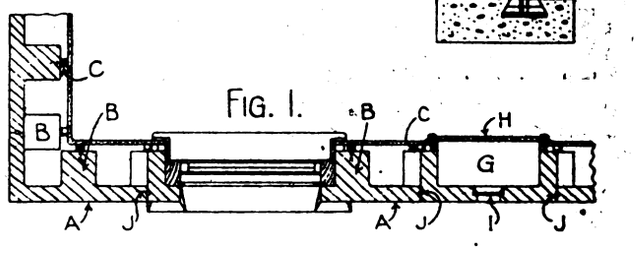
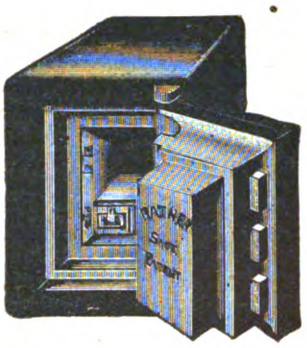


FIG. 1.

a flat or finished face on one side and protuberances on the other. One object of the invention is to construct dwelling-houses, buildings, or other structures in such a manner as to effect considerable economy in the cost of their erection, while maintaining a high degree of stability, combined with freedom from the effects of cold and

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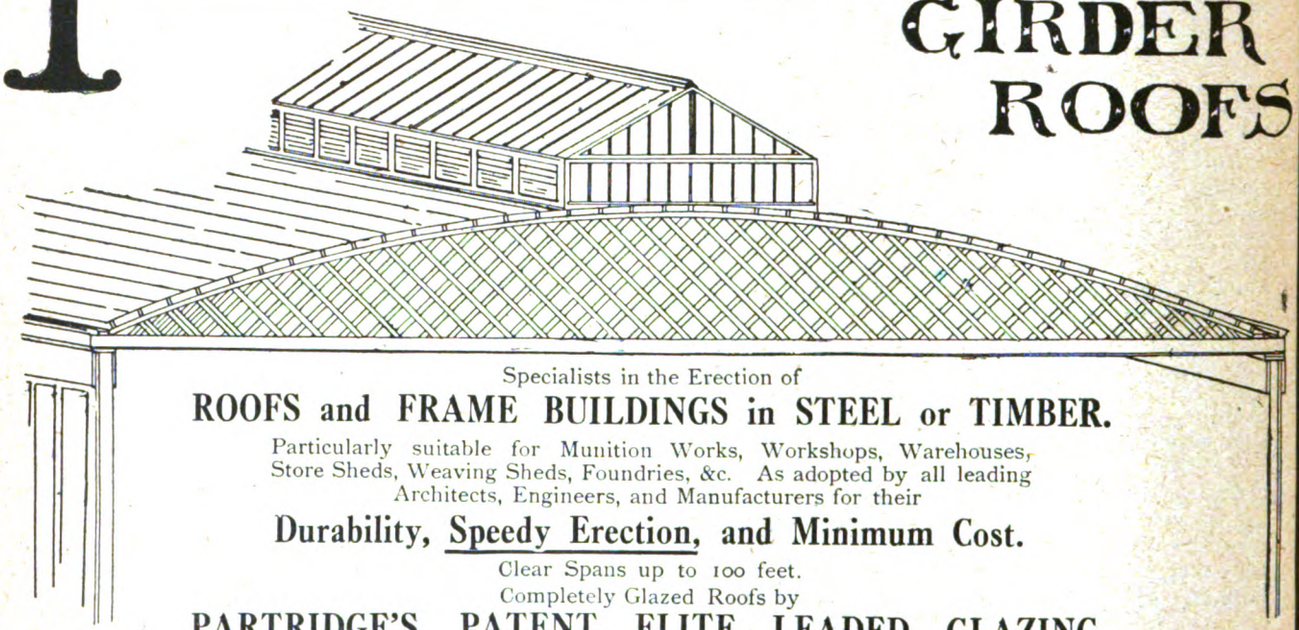
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damp. The walls of a building or structure are built up of slabs having projections formed upon their inner faces, which are so constructed and arranged that any of the usual covering materials which are to constitute the inside walls can be applied or attached to the projections in such manner as to provide hollow spaces of considerable size between the inner faces of the slabs and the material constituting the inside walls. A further feature of the invention is to provide the slabs with projections adapted to be attached to uprights, to which latter may be secured the joists of the various floors of the building or structure, and also, if desired, the rafters and any other girders, tie-rods, or supporting members employed. In instances where uprights are dispensed with, the joists may be attached directly to the projections or supported directly thereon. Grooves may be provided around the edges of the slabs in order that, when the slabs are grouted to each other by cement or other suitable binding material, the cement will collect in the grooves and thus form a key which will serve both to maintain the slabs in alignment with each other and to keep the walls weatherproof. Figs. 1, 2, and 3 show in plan, vertical section, and part-elevation one form of the slabs with angle irons bolted to the projections thereon. A desig-

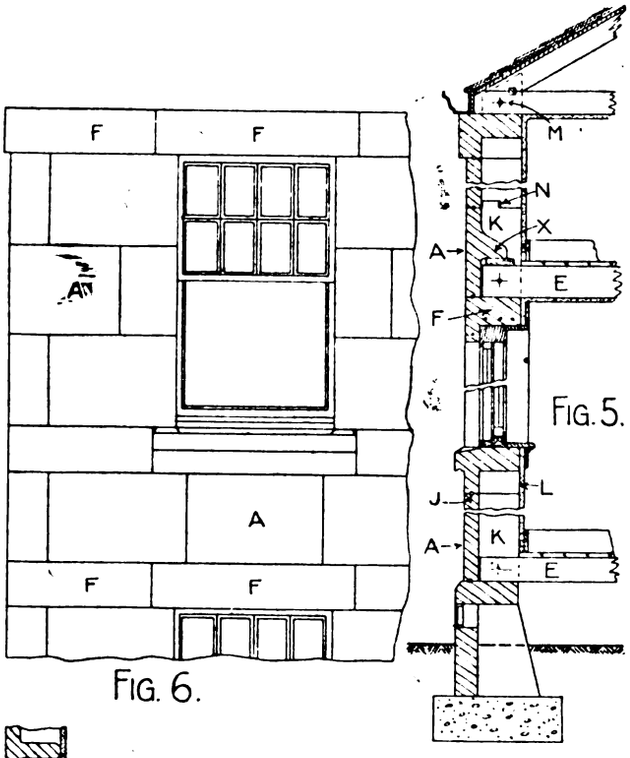


FIG. 6.

FIG. 5.

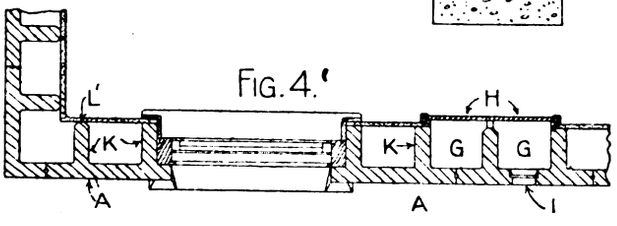


FIG. 4.

nates the slabs with their projection B. C are upright angle irons bolted to the projections B and also to the roof at D. E are flooring joists which rest upon the lintel-course F, each joist being attached to and embedded in the projection and locked in position by bolts and nuts to the angle irons C. G shows a special recess in the wall for the purpose of providing a press or larder. H is a door therefor, and I is a ventilating grating. J are the half-circular grooves formed round each slab, which, when grouted, form a key, serving to keep the slabs in alignment. Figs. 4, 5, and 6 show in plan, vertical section, and part-elevation a modified construction in which the slabs A are furnished with narrow projections K, which extend the entire depth of the slab, to the inner edge L of which the lathing is nailed. The joists E in this case are secured by bolts to the projections K, instead of to angle or tee-irons, by wedges, as shown at X, and the roof spars are similarly bolted at M to wings upon the slabs forming the eaves course. G are two small larders or presses, with corresponding doors H formed in the hollow wall, and ventilated by the grating I. N designates the interlocking parts of the slab projections to prevent the buckling of the wall.—Feb. 21, 1917.

PATENT SPECIFICATIONS.

Selected by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

No. 12,987 (May 27, 1914.—Prior date under the International Convention May 28, 1913).—J. F. Leger, 81 rue Thiefry, Schaerbeek lez-Brussels. Manufacture of refractory bricks.

105,105 (Mar. 29, 1916).—J. F. Place, 971 Bloomfield Avenue, Glen Ridge, New Jersey, U.S.A. Process and apparatus for reviving and re-oxygenating the air.

105,108 (Mar. 30, 1916).—The British Reinforced Concrete Engineering Co. Ltd., and E. B. Hall, 1 Dickinson Street, Manchester. Stirrups, or shear members, as used in reinforced concrete structures.

105,113 (Mar. 31, 1916).—G. M. Trimingham, 2 Ravenhill Gardens, Belfast, and William Johnstone, 69 Southport Street, Belfast. Door hinges.

105,138 (May 6, 1916).—C. G. Heywood, Derwent House, Chislehurst, Kent, paint and varnish manufacturer, and F. G. Kidd, Storer's Wharf, Poplar. Means for agitating the liquid contents of tanks for coating or treating by dipping.

105,147 (May 25, 1916).—Leon Ottinger, 131 Nassau Street, New York, U.S.A. Locks or latches, and the like.

105,156 (June 13, 1916).—G. M. Grieve, 11 Erfurt Avenue, Lower Bebington, Cheshire. Chimney top for the prevention of down draught.

105,159 (June 20, 1916).—James Heath, Manor Avenue, Urmston, near Manchester. Drain plugs.

105,175 (July 24, 1916).—Ernest Tutin, 113 Thomson Street West, Harrowgate Hill, Darlington. Ventilators of the mushroom type.

105,186 (Aug. 14, 1916).—R. F. Dampier, Dundonald Villa, Stoke Devonport. Window frames and sashes.

105,188 (Aug. 14, 1916).—J. H. Cartland, Constitution Hill, Birmingham, and H. J. Arnold, 40 Bournville Lane, Stirchley, Birmingham. Sash fasteners.

105,198 (Sept. 11, 1916).—Sulzer Freres Society, Anon, Winterthur, Switzerland. Distillation of tar.

105,202 (Oct. 12, 1916).—Robert Illemann, 54 Scott

105,005 (July 20, 1916).—L. A. Webster, 112 Oxford Road, Acocks Green, Birmingham. Coal savers for domestic firegrates.

Street, Port Dundas, Glasgow. Bituminous cement or composition and method of making the same.

105,205 (Oct. 26, 1916).—H. A. Cutler, City Surveyor's Office, Belfast. Means for removing deposit from drains, pipes, and the like.

Any of the above specifications may be obtained from J. D. Roots.

A CARDIFF housing conference on Saturday last passed resolutions urging the Government within ten years after the war to make a £5,000,000 loan to local authorities for working-class dwellings in South Wales and Monmouthshire and grant compulsory powers to acquire land.

THE Chapel-en-le-Frith Board of Guardians have now decided to purchase Cromwell House property in the town of Chapel-en-le-Frith from Mr. Bagshawe, Ford Hall, for the purpose of a new children's home at £1,000, the completion of the purchase to be deferred until the end of the war.

THE Corporation of Brighton has received by the bequest of the late Miss Priscilla Hack, a portrait in oils, by J. Doyle Penrose, of the late Mr. Daniel Hack, a water-colour drawing by Gordon Hargrave, and a small Samian cup which was found with other Roman remains in the digging of the foundations of the Hack residence in Trafalgar Street.

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VARIETIES.

THE wages of the Southampton building trades operatives and labourers are to be advanced 1*d.* per hour, beginning on May 1.

THE will of the late Mr. Charles Nicholson, of Leylands, Hatfield, Doncaster, civil engineer, has been proved at £44,442.

MR. J. S. BRUN, of Bradford-on-Avon, has been appointed surveyor and inspector of nuisances to the Darfield Urban District Council.

THE will has been proved at £13,688 of the late Mr. James Forrest, of St. Leonards-on-Sea, or many years secretary of the Institution of Civil Engineers. (Net personalty £13,574.)

GLOUCESTER Rural District Council has appointed Mr. W. Fitzgerald Jones surveyor and inspector of nuisances in succession to the late Mr. F. F. Weaver, at a salary of £200 a year.

A GRANITE Celtic cross, 10 feet high, has been erected outside St. Barnabas Church, Plough Road, Rotherhithe, by people of the neighbourhood in memory of Dr. Hugh Latimer Atkinson, who was killed on January 1, 1916.

THE Select Committee of the House of Commons have concluded consideration of the proposals of the South-Eastern and Chatham Railway Company for the strengthening of Charing Cross Bridge, and found the preamble of the Bill proved.

AT a special meeting of the Blyth Council, Mr. Leonard Leeper, of Great Yarmouth, was appointed engineer and surveyor at a commencing salary of £300 per annum. Mr. Leeper has been acting as deputy engineer and surveyor at Great Yarmouth. There were fifty-five applications for the post.

AT a meeting of the British Astronomical Association held last week at Sion College, Mr. Maunder gave a short lecture on the Egyptian pyramids, based partly on the researches of Professors Flinders Petrie and Piazzi Smyth, and partly on his own deductions. He concluded from the astronomical evidence that the date of the great pyramid might be either B.C. 3350 or B.C. 2170 approximately, whereas on documentary evidence Professor Petrie had given a date between B.C. 4500 and B.C. 4000. He drew attention to the extreme accuracy of the orientations and measurements.

THE fifty-fi th annual meeting of the London and Lancashire Fire Insurance Co., Ltd., was held in Liverpool on April 25, when the report and accounts for 1916 were submitted to the shareholders. The total premiums for the year amounted to £3,269,730, and the total underwriting profit, after providing for the increase of unexpired liability, and after deducting income tax, to £242,444. The reserve funds, apart from capital, now amount to £4,010,993, and the total security to policyholders has reached the sum of £6,652,243.

THE death took place at his home, Greenhurst Park, Surrey, on the 25th ulto., of Mr. James Hawke Dennis, founder and chairman of James H. Dennis & Co., Ltd., of Liverpool and Widnes. In conjunction with the late Sir Edward Sullivan he was largely instrumental in forming the United Alkali Company. To commemorate the reign of Queen Victoria, Mr. Dennis built the Victoria Tower of Truro Cathedral as a Jubilee gift to the county of his birth. Mr. Dennis formed and equipped the first Volunteer Corps in Cornwall in 1858, and was for many years its principal officer, and the oldest Volunteer officer in England.

IT has been recently stated by "La Stampa" that from boring operations made last year in the Province of Novara, the existence of an important bed of coal has been ascertained. It is also rumoured that the Italian Government intend taking steps to utilise the discovery. It may be mentioned that Italy, up to the present time, has been dependent on other countries for this fuel, and during the two last years has been feeling the pinch, her supplies from Germany, Belgium, and France having been practically cut off. She imported about 11½ million tons of coal from England during the two years ending December 1916, and a considerable quantity from America.

MR. WILLIAM BODDIE, one of the best-known men in the Aberdeen granite trade, died at his residence in Aberdeen on the 24th ulto. Mr. Boddie was a native of Forgue. In recognition of his long and valuable service in the interests of the trade Mr. Boddie was in 1908 presented with a granite bust of himself by members of the trade in Aberdeen. Mr. Boddie took an active interest in local affairs. He did useful work as a member of the Aberdeen Town Council for many years, and for a period held the office of a Magistrate of the city. He was also a Justice of Peace for the county of the city. He was about seventy-eight years of age, and is survived by a family.

LADY BUTLER, painter of "The Roll Call" and other famous battle pictures, has arrived in London from Ireland for the opening of an exhibition of pictures entitled "Glimpses of the Great War," which will shortly be held at the Leicester Galleries, Leicester Square. These water colours are the output of two years' work, and Lady Butler has decided to present the proceeds of the sale of the pictures to the Lord Roberts's Memorial Fund for Workshops for Disabled Soldiers and Sailors. Included in the exhibition will be Lady Butler's famous picture "Steady the Drums and Fifes," which will be lent by the Middlesex Regiment. Two years ago an exhibition of Lady Butler's pictures was held in these Galleries, by which the sum of £1,000 was raised for the Officers' Families Fund.

LIEUTENANT DENIS NOEL TYRRELL-GREEN, Royal Sussex Regiment, killed on March 26, aged twenty-two, was the elder son of the Rev. Professor Tyrrell-Green, of Burpham Croft, Sussex, and Lampeter, South Wales. On the outbreak of war he had been in residence a year at Jesus College, Cambridge, and was a member of the University O.T.C. He immediately volunteered, and received a commission. In the Gallipoli campaign he twice distinguished himself, and, after being invalided home from Gallipoli, he acted for some time as temporary captain. He had literary and artistic tastes, besides being a musician and linguist. A fellow-officer writes: "He was liked and loved by the men, and was a true comrade and brother-officer. His loss is a very real one to the regiment."

AT a recent meeting of Hawick Archæological Society a short paper by the Rev. A. P. Sym, Lilliesleaf, was read, giving particulars of an old sun-dial. While the sexton was digging a grave a little to the west of the Muselie Aisle he found a large block of stone buried in the soil. It was afterwards recognised as the sun-dial of the church, which long ago covered the knoll in the middle of the churchyard, and was demolished in 1771, when the present church at Lilliesleaf was built on a different site. In addition to the markings on the dial, the stone, which measures about 14 inches square, bears the following inscription:—"M. W. W. 1642. Watch and Pray. Tyme stays not." The letters mean "Minister, William Wilkie." He was the successor, probably the son, of Thomas Wilkie, and served the cure from 1640 to 1674. He was a staunch Covenanter.

MR. THOMAS WHARRIE, of Eton Avenue, Hampstead, London, N.W.; Sachel Court, Alford; Billingshurst, Sussex; and Warnham Lodge, near Horsham, a director of the British Mutual Banking Company, Ltd., and of the Prudential Assurance Company, formerly head of Messrs. Wharrie & Colledge, civil engineers and land surveyors, Glasgow, left a fortune of the value of £294,852 2*s.* 7*d.*, the net personalty being £241,748 14*s.* 9*d.* The testator gives £1,000 to the Royal Infirmary, Glasgow; £1,000 to the Western Infirmary, Glasgow; £1,000 to the Victoria Infirmary, Glasgow; £1,000 to the East Park Home for Infirm Children, Glasgow; £1,000 to the Higginbotham Sick Poor Nursing Association, Glasgow; and legacies to servants. The Sachel Court estate he leaves to William M. Houstoun, £10,000 to Andrew Houstoun, 800 shares in the Prudential Assurance Company to Robert Houstoun, a large number of Prudential shares in trust for William Houstoun and his children, £1,000 to the Vicar of Warnham, other legacies, and the residue of the property to his wife.

AT a conference last week between the Director of Materials and representatives of the National Federation of Paint, Colour, and Varnish Manufacturers' Associations of the United Kingdom, it was decided to allow the sale and use without restriction as to quantity or purpose of (1) all coloured paints in paste form or dry colour affected by the Lead Order of April 5, excluding any tinted, genuine or reduced white lead, or sulphate of lead; (2) all paste and liquid dryers containing lead; (3) all ready mixed paints containing lead—provided that any of these materials were actually manufactured on the 24th ulto. It was further decided to allow the supply of white or tinted paints containing not more than 50 per cent. of white or red lead or lead sulphate based on dry material direct to ships, but not into store, on account of owners or ship store merchants up to May 31. After that date these goods must be supplied only in accordance with the Order dated April 6, 1917. The time of grace is allowed to enable shipowners and ship-store merchants to obtain the necessary priority classification, for which they should apply to the Ministry of Munitions, Priority Branch, 1 Caxton Street, Westminster. In all other respects the Order dated April 6, 1917, must be strictly adhered to.

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THE
Architect and Contract Reporter.
FRIDAY, MAY 11, 1917.

EDITORIAL NOTICES.

The Editor will always be pleased to examine drawings or articles with a view to publication, but cannot be responsible for the safety of those sent, though every reasonable care will be taken. Contributors desiring payment should clearly state their wishes. No payment will be made until after publication, and a commission to prepare articles or drawings does not necessarily imply acceptance or approval.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

CONTRACTS OPEN.

ABERDEEN.—May 21.—For the mason, carpenter, and slater work of the following buildings: Parish of Methlick—(1) North Ardo, dwelling-house; (2) Hillbrae, new steading; (3) Throopmuir, double byre, &c. Parish of Tarves—(4) Burnside of Schivas, double byre, &c.; (5) Upper Kirton, barn, stable, &c. Parish of Udny—(6) Millbank, dwelling-house. Parish of Ellon—(7) Airdlin, dwelling-house. Parish of New Deer—(8) Coulterna, barn, &c. Mr. C. G. Smith, factor, Haddo House, Aberdeen.

BLAENAVON (MON.).—May 14.—For renovations and alterations at the workmen's institute, Blaenavon. Mr. J. Davies, secretary.

BRITON FERRY.—For erection of two 20-ft. through arches for six retorts each, shallow generators, for the Briton Ferry Urban District Council (Gas Department). For further particulars apply to the Manager.

BURY (LANCS.).—May 14.—For the painting, &c., required at the Paradise Street police station, Bury, for the Corporation. Borough Engineer's Office, Bank Street.

DUBLIN.—May 24.—For the erection of dwellings and the execution of other works on the first section of the Spitalfields area. Deposit £2. Mr. Edmund W. Eyre, City Hall.

EDMONTON.—June 5.—For certain works of painting, cleansing, distempering, &c., to three schools within their district for the Edmonton U.D.C. Deposit £1. Mr. A. Heap, secretary to the Education Committee, Brettenham Road, Upper Edmonton, N. 18.

HALIFAX.—May 21.—The Highways Committee of the Halifax Corporation invite tenders for the execution of private improvement works in Hubert Street for the Halifax Corporation. Deposit £1. Mr. Percy Saunders, Town Clerk, Town Hall, Halifax.

WELLS (SOMERSET).—May 14.—For rebuilding wall to bank supporting the Castle Cary to Somerton main road at Lovington, for the Somerset County Council. Deposit £1 1*s*. Mr. G. R. Folland, acting county surveyor, Wells.

WESTHOUGHTON (LANCS.).—May 14.—For erection of 100 type "A" houses for the accommodation of munition workers, for the Westhoughton Urban District Council. Deposit £1 1*s*. Mr. T. Partington, clerk, Town Hall, Westhoughton.

THE interesting statement made at the Birkenhead Council by Alderman Bloor, chairman of the Water Committee, that the Crosshill reservoir tank at Thingwall was nearing completion, served to switch the attention of councillors from questions bearing on the war and food shortage to the equally important one of water. The Crosshill reservoir is the first portion of the great undertaking, which is costing the borough so much money, to be finished, the war having put an end to work on other vital parts of the scheme. The huge dam, high up on the mountains of Denbighshire, will be the next portion of the undertaking to be finished, but the completion of the Thingwall reservoir brings it home to the people of the borough that they are co-partners in a great water scheme which is to serve the community for all time. This reservoir is the largest of its kind in the country, and when filled with millions of gallons of water will be covered over. The roof, which is a huge work in itself, will be supported by hundreds of pillars.

TENDERS.

GRANTHAM.

For alterations and additions at the Guildhall, for the Town Council.

PARKS & SON (*recommended*) . . .	£269 4 0

LEYLAND.

For water-scheme extension, for the Leyland Urban District Council.

H. & G. ASHLEY, Bentinck Chambers, Mansfield (*accepted*)	£6,275 0 0

LONDON.

For alterations to the switchboard gallery to accommodate additional switchgear with the third new turbo-generator to be installed at Greenwich generating station, for the London County Council.

C. Wall, Ltd., Chelsea, S.W. . . .	£433 0 0
W. DOWNS, LTD., Walworth, S.E. (*accepted*)	361 0 0
Architect's estimate	350 0 0

For the supply of high-tension switchgear for Greenwich generating station and Woolwich sub-station, for the London County Council.

British Thomson-Houston Co., Ltd., Rugby	£2,990 10 0
A. REYROLLE & Co., LTD., Hebburn-on-Tyne *	1,999 13 0
General manager's estimate . . .	2,500 0 0

* Accepted subject to certain modifications in the machinery to be supplied, which had the effect of increasing the amount of the tender to £2,596 12*s*.

READING.

For altering and adapting a part of the disused police station in London Street for the purpose of the scheme for maternity and child welfare in the borough.

MESSRS. G. S. LEWIS & BROS., Castle Street, Reading (*accepted*) . . .	£497 0 0

SOUTHAMPTON.

For certain dredging work to be carried out in the River Itchen, Southampton, for the Southampton Harbour Board.

R. E. V. JAMES, LTD., Southampton (*accepted*)	£1,830 0 0

SOUTH SHIELDS.

For extensions and alterations to the 1,500-k.w. turbine, for the South Shields Town Council.

BRITISH WESTINGHOUSE CO., LTD. (*recommended*)	£940 0 0

MESSRS. BRAITHWAITE & KIRK, engineers, of 117 Victoria Street, S.W., and Crown Bridge Works, West Bromwich, and Neptune Works, Newport, Mon., write us that as Mr. A. E. G. Braithwaite is retiring from business on the ground of ill-health, the partnership has been dissolved, and the business will be carried on as Braithwaite & Co., the partners being Messrs. J. H. Humphreys and A. Anderson.

CAPTAIN LEONARD LANE TALBOT, Royal Field Artillery, aged thirty-four, whose death from wounds in France on April 24 was recently reported, was the youngest son of Mr. and Mrs. F. Talbot, of Caversham. He was educated at the Reading Collegiate School, and in early youth left England for Paraguay, where he achieved success as a surveyor. In 1907 he married Vera, only daughter of Count Leopoldina, of Brazil, whom he lost after a happy union of only two and a half years. On hearing of the outbreak of war he at once returned to England, and joined "King Edward's Horse." After serving in France as a sergeant with the 2nd Canadian Mounted Contingent he was given a commission in the Royal Field Artillery in January 1915. Within the year he was promoted to a lieutenancy, and in September 1916 was advanced to the rank of captain, followed in December by the appointment of divisional officer for heavy trench mortars. Captain Talbot was a striking personality, both physically and mentally. His fearlessness had been proved in many adventures, both on the Grand Chaco of Paraguay and on the head waters of the Amazon. One particularly brave deed was chronicled some years ago in the pages of "The Wide World" magazine. At the Front his reconnaisance work, both on land and in the air, was marked by great daring. His many friends at home and in South America will sincerely mourn his loss.

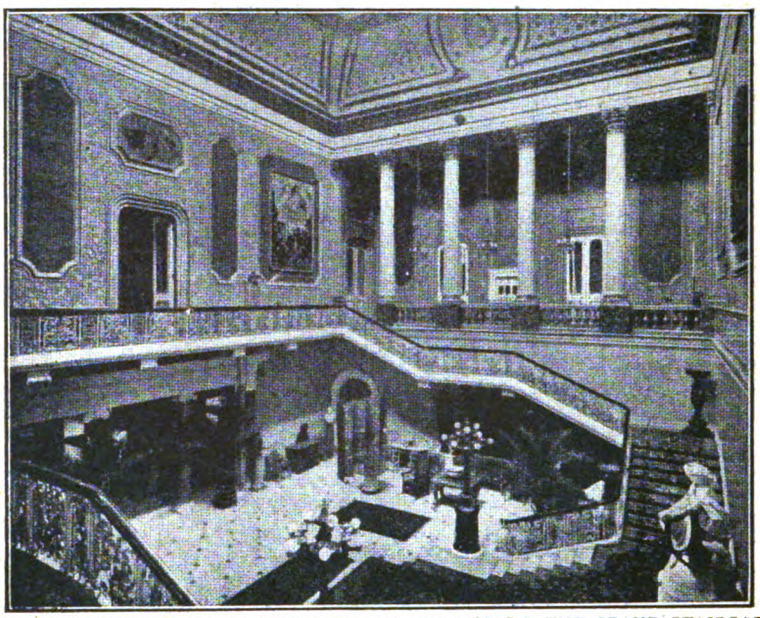
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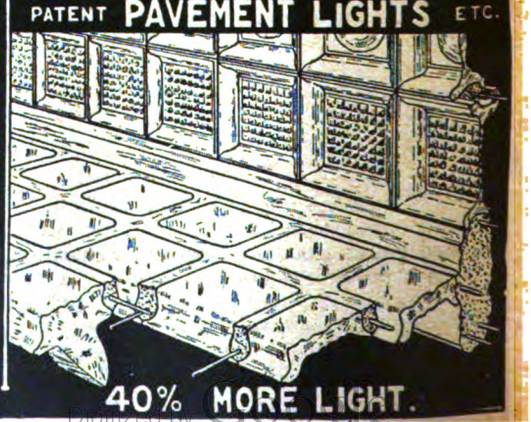
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TRAINING OF TEACHERS IN HANDICRAFT.

THE Education Committee of the London County Council report that they have had under consideration the question of the training of teachers in handicraft, having specially in view the need for providing for central schools with a technical bias a supply of teachers trained to a standard as high as that obtaining at present, although manual skill would necessarily replace linguistic ability to some extent. The Council has in operation at the Shoreditch Technical Institute an excellent course of four years' training for pupil-teachers of handicraft, but, although the course includes instruction in science, art, mathematics, and the humanities, as well as handicraft, it is not recognised under the training college regulations of the Board of Education, and the students do not become recognised as trained certificated teachers. They are accordingly not eligible for employment as ordinary class teachers, nor for subsequent appointment to head masterships. The result is that handicraft remains to some extent divorced from the ordinary work of the school. One or two of the handicraft pupil-teachers have subsequently qualified for admission to a training college, and have become trained certificated teachers, but under the present arrangements this is quite exceptional. Instructors in handicraft who become qualified as certificated teachers receive, under the new regulations, the salaries appropriate to certificated teachers, whether they are employed as handicraft instructors or as class teachers.

The committee understand that the Board of Education would probably be prepared to recognise the last two years of the course at Shoreditch as a training college course, and to pay the appropriate grant on it. Certain slight modifications might have to be made as regards the age of admission to the course, the examinations taken by the students, and the date of commencement. No modification appears to be necessary in the method of selection of candidates.

At present 10 pupil teacherships are awarded annually. If sufficient good candidates are forthcoming, it is thought that the number of awards should be increased to 15 each year.

At the end of the second year of the course, *i.e.*, at the age of 17 +, the pupil-teachers should take the preliminary certificate examination of the Board of Education, in which one of the compulsory subjects is music. The committee suggest that application should be made to the Board to allow these particular candidates to take music as an optional instead of a compulsory subject. The examination in handicraft might be conducted by the authorities of the institute with the assistance of an assessor appointed by the Board of Education. The committee feel that students who show little aptitude for scholastic work in the third and fourth year, but who are otherwise suitable, should be accepted as manual training instructors, though they may not qualify for the teacher's certificate.

The first two years of the course would be recognised for grant under the technical institute regulations, but it is proposed that the Board of Education should be asked to recognise the last two years under the training college regulations.

The committee also propose that application should be made to the Board to allow the substitution of applied mechanics in place of physics or chemistry, and to allow handicraft to replace theory of music and singing. As regards the test in handicraft, they are of the opinion that it would probably be found advisable for the students to take the City and Guilds examinations, as at present:

In view of the proposed recognition of the course as a training college course it will be possible to claim increased grants from the Board of Education, and, if the course is recognised by the Board, it will be possible in the future to strengthen the staff of the Shoreditch Technical Institute, and to make the additional awards without causing any net additional expenditure to the Council. The Finance Committee have no observations to offer. The committee recommend—

(*a*) That, as from January 1, 1918, the number of pupil teacherships of handicraft to be awarded annually be increased to 15, if suitable candidates present themselves; that the minimum age for pupil teachers of handicraft be 15 + on March 31, but that in exceptional cases candidates of 14 + be accepted; and that the course do commence from the beginning of the summer term, the selection to be made on the recommendation of the head master, the result of a written examination, and an interview, as at present.

(*b*) That, at the end of the second year of the course, pupil-teachers of handicraft shall take the preliminary certificate examination of the Board of Education; that application be made to the Board to allow music to be an optional subject in the case of these candidates, provided that they satisfy the requirements of the Board as regards handicraft; and that it be suggested to the Board that an examination conducted by the authorities of the Shoreditch Technical Institute with the assistance of an assessor appointed by the Board should be regarded as satisfactory evidence of skill in handicraft.

(*c*) That application be made to the Board of Education for the recognition as a training college course of the third and fourth years of the course of instruction for pupil-teachers of handicraft at the Shoreditch Technical Institute; that the Board be asked to recognise applied mechanics in addition to physics and chemistry as one of the science subjects which may be taken in substitution for elementary science in the certificate examination for these students; and that the Board be further asked to allow the theory of music and singing to be an optional subject for these students in their course of study, on the understanding that the students take the City and Guilds examinations in handicraft, as at present.

THE GOVERNMENT AND CONCRETE.

Timber (*Substitutes*).—The following questions were put and replies given in the House of Commons on Tuesday, May 1, on the above subject:—

Sir E. Lamb asked the Financial Secretary to the War Office whether any steps have now been taken to notify to the railway companies conducted under War Office control that a Cabinet Instruction has been issued as to the necessity of avoiding the use of timber wherever possible; and whether any steps have been taken to point out the advantages of using concrete in lieu of timber for railway sleepers (on sidings), signal and telegraph posts, gate posts and fence posts, as successfully applied on several of the railway companies in the United Kingdom, in the United States, and in certain Continental countries?

Mr. Forster: The necessity of exercising economy in the use of imported soft wood for railway purposes has been impressed upon the Railway Executive Committee, and the Committee has lately pointed out to the various railway companies the desirability of substituting concrete for timber wherever possible.

Sir E. Lamb asked the President of the Board of Trade whether he is aware that a Cabinet Instruction has been issued as to the necessity of avoiding the use of timber wherever possible; whether any steps have been taken to advise the railway companies of this instruction and the advantages of substituting concrete for timber for railway sleepers on sidings, signal and telegraph posts, gate posts, and fence posts; and whether other corporations coming within the purview of his Board during the war have received recommendations on this point?

The Parliamentary Secretary to the Board of Trade (Mr. G. Roberts): I understand that the Railway Executive Committee and other bodies have been approached on behalf of the War Office with a view to secure that substitutes shall be used for timber whenever possible.

Sir E. Lamb asked the Postmaster-General whether

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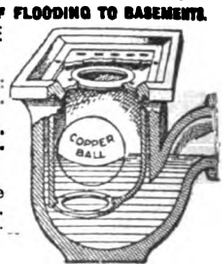
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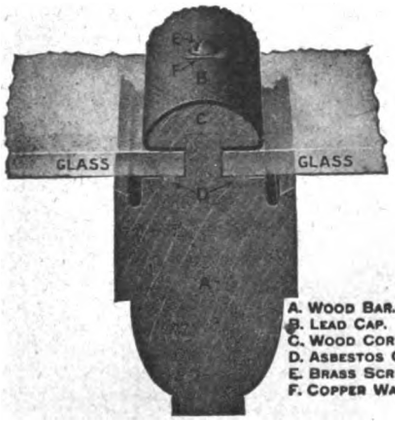
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he is aware that a Cabinet Instruction has been issued as to the necessity of avoiding the use of timber wherever possible; whether he is aware that concrete poles are now cheaper than timber poles; whether any steps have been taken to utilise concrete in lieu of timber for the large numbers of telegraph poles annually erected or re-erected in the United Kingdom by his Department; and whether he is aware that such telegraph poles are largely used in France, Switzerland, Italy, and in the United States.

The Postmaster-General (Mr. Illingworth): I am aware of the Cabinet Instruction to which the hon. member refers. The use of concrete or ferro-concrete poles in place of wood poles has been considered several times, but hitherto it has been found that the cost is prohibitive. It has not been necessary to reopen the question since the outbreak of war because the construction of pole lines has been so limited that the existing stocks of poles have been generally sufficient to meet Post Office requirements. I do not expect to make further purchases for some time to come, but I will not fail to keep in mind my hon. friend's suggestion.

Sir E. Lamb asked the Secretary of State for the Home Department whether he is aware that a Cabinet Instruction has been issued as to the necessity of avoiding the use of timber wherever possible; and whether any steps have been taken to encourage mine owners to use concrete pit-props, &c., in lieu of timber, as largely used in the United States?

Mr. Brace: Yes, sir; the question of economy in the use of timber in mines has been receiving attention for some time. Owners have been urged to use substitutes, such as concrete, as far as possible, and I understand this is being done to a considerable extent.

MR. G. BAGSHAW, builder, of Buxton, who died on February 23, left £13,794.

A ROOD beam with figures and a chancel screen is to be erected at Albury Church, Berks, where the Rev. R. W. Carew Hunt is Rector, in memory of Captain A. N. Carew Hunt and Private A. M. Carew Hunt.

THE L.C.C. ought to be proud of the record of service of men from the architect's department. Yet a further loss is announced. Second-Lieutenant Robert Dixon Wills, who held a commission in the Border Regiment, has just been killed in action, aged twenty-three years.

BUILDINGS for the purposes of a public market are about to be constructed in the city of Saltillo, Mexico. The buildings are to be of special architectural merit and of an extensive nature, and fitted with the latest up-to-date appliances.

APPEALING for funds to defray the cost of altering the interior of Brixton Parish Church by way of a memorial to those who have fallen in the war, the committee adds that "they consider it would be as unworthy to raise the funds for this memorial by way of bazaars or concerts as it would be for a man to meet the costs of his mother's tombstone with the profits from a rummage sale."

THE condition of the steeple of St. George's Church, Buchanan Street, Glasgow, was considered at a meeting of the Corporation General Finance Committee's Sub-Committee on Churches. The sub-committee had before them a further report by the city engineer, Mr. Thomas Nisbet, of an examination which he has made of the steeple and its foundations. In order to carry out the requisite repairs it will be necessary for the church to be closed for three months.

AT a statutory meeting of Clackmannan County Council, held at Alloa, the Earl of Mar and Kellie, K.T., convenor of the county, who presided, said that about a year ago the late Mr. David Thomson, D.L., chairman of the County Territorial Association, asked him if he thought it would be appreciated if, at the end of the war, he gave a memorial to the county on which the names of all those who had fallen in battle would be inscribed. He need hardly say that he assured Mr. Thomson that such a war memorial would be more than appreciated. Mr. Thomson had since died, but he had the authority of his son, Mr. John Græme Thomson, for saying that whether or not provision was made in his father's will for the erection of the memorial, he would undertake to see that his wishes were fully carried out.

PATENT SPECIFICATIONS.

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NAMES of the last of the 107 members of enemy nationality on the rolls of the Iron and Steel Institution before the war have now been struck off.

THE will of the late Mr. Jesse Ainsworth Scott, of Greystead, Buxton Road, Stockport, Cheshire, a partner in Stott & Sons, Manchester, architects and engineers, has been proved at £36,707.

AN outbreak of fire, the cause of which is at present unknown, occurred at Copped Hall, Epping, the country seat of Mr. E. J. Wythes, about seven o'clock last Sunday morning, and in a few hours the splendid mansion was burnt to the ground, only the walls remaining. Copped Hall was one of the finest country mansions in Essex. Standing on the top of a hill—the name "Copped" comes from the Saxon "cop," a hill-top—it overlooked a beautiful stretch of Essex. The hall, which was built in the middle of the eighteenth century, was noted for its Italian gardens with terraces and its splendid park.

CAPTAIN WILLIAM VANSTONE MORGAN, of the Norfolk Regiment, was killed in action on April 19. He was the second son of Mr. and Mrs. B. B. Morgan, of Norwich. He went to Gallipoli in July 1915, and had been on foreign service with his regiment since that date. He was educated at Norwich Grammar School, and upon leaving school was articled to Mr. J. W. Cockrill, M.I.C.E., borough surveyor, Great Yarmouth. At the expiration of his articles he joined his father's firm (Messrs. Morgan & Buckingham, architects, surveyors and valuers, of Norwich and Diss), and managed their branch business at Diss, Norfolk, where he made many friends. He was twenty-seven years of age.

MEMBERS of the Yorkshire Farmers' Union who regularly attend the Doncaster Markets were highly gratified at the Order made by the Government for dealing with the neglected drainage of agricultural land. They referred to it as "Our Order." It is the obvious outcome of the action taken by the Executive of the Yorkshire Farmers' Union. The vital question now is whether the Order can be brought into operation quickly enough to bear fruit in the next harvest. The water-logged wastes in the Doncaster district cover an area of 50,000 acres, and much of the land is rich soil capable, if properly drained, of producing twelve tons of potatoes to the acre, mangolds of any size in reason, or good crops of wheat. It has been practically unproductive for years because of its liability to flooding. Mr. W. Dobson, of Sprotborough, was a pioneer in this drainage reform campaign. His attention was directed to the existing defects through some business transactions several years ago, and for quite ten years he has been agitating for this reform.

MR. AND MRS. GEORGE B. DOE, Errol, have received official intimation that their son, Second-Lieutenant Alfred B. Doe, Black Watch, died of wounds on the 23rd ult. The letter received from Colonel Booth, his commanding officer, states that Lieut. Doe, while gallantly leading his platoon in a charge, was seriously wounded, and died three days later. Lieut. Doe was well known and highly respected in the Carse, and especially in his native parish of Errol. He served his apprenticeship as an architect and surveyor in the office of Messrs. J. & F. Salmond, Dundee, and for four years prior to his enlistment he acted as principal assistant to Mr. David Hardie, factor, Errol Estates Office. Lieut. Doe, after receiving about a year's training in the Lincoln's Inn O.T.C., was gazetted in August last to the Black Watch, and almost immediately thereafter was drafted to the Front.

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VARIETIES.

MR. G. H. BALL, formerly a member of the Liverpool City Council, left £1,000 to the city towards the cost of enlarging the Walker Art Gallery.

ON April 19 Lieutenant Steuart Phyn Crombie, K.O.S.B., aged twenty-three, second youngest son of the late Alan B. Crombie, architect, Dumfries, and Mrs. Crombie, Glasgow, was killed in action.

AN interesting exhibition of water-colour and other drawings by members of the British Water-Colour Society is being held at Mr. W. C. C. Smythe's art gallery, 32 High Street, Coventry. The exhibition will remain open during May.

A SUM of £3,507 has been promised or received towards the cost of new wards to give twenty-eight beds at the Ashton (Lancs.) District Infirmary. The building scheme, which also includes additions to the Nurses' Home, is estimated to cost £4,000.

THE funeral of Mr. John MacKenzie, C.E., J.P., took place on Saturday last, when the remains were removed from his late residence at Malone for internment in Balmoral Cemetery. The deceased was a member of the firm of Messrs. Young & MacKenzie, and one of the best-known architects in the province of Ulster.

THE bust of the late Lord Leighton which the Royal Academy has presented to the Corporation of Scarborough is now in the vestibule of the Town Hall. It is a bronze bust on a marble stand, on which there is the inscription:—Frederick Lord Leighton, of Stretton, Painter and Sculptor. President of the Royal Academy of Arts 1878-1896. Lord Leighton was a native of Scarborough.

AT its meeting on Tuesday, May 1, the London County Council agreed to pay £40,000 to the City Corporation in respect of the Council's promised contributions towards the cost of City improvements. The Council has also decided to pay a further sum of £5,900, making a total of £92,900, in respect of the East Road to Baring Street improvement, Shoreditch.

THE London News Agency learns that as the result of conferences the scheme for federating the building trade unions has been settled. There will be one big national federation. The chief cause of the movement was the desire to be in a stronger position in dealing collectively with the authorities in the many matters arising during the war which seriously affect the building trades.

THE Paris correspondent of the "Daily Telegraph" says that the fate of Rheims Cathedral is now sealed. The edifice has been repeatedly shelled with savage violence. The roof threatens to crumble, and one of the spires may fall at any moment. All the houses in the neighbourhood of the cathedral are reduced to ruins. The Town Hall was set on fire by incendiary shells, and is now burned to the ground.

THE death has occurred at Aberdeen at the age of eighty-seven of Mr. Alexander Ellis, who was for many years a well-known architect in the city. He was for many years a member of the architectural firm of Messrs. Wilson & Walker, which carried out a large number of public building contracts in Aberdeen and the North of Scotland. Mr. Ellis, who had retired from business some years ago, is survived by a widow and two daughters.

LIEUTENANT JAMES FENN BECK, third son of Mr. and Mrs. H. Beck, of Doncaster, has fallen in action. The young officer's father, a Doncaster architect, has been serving at a Y.M.C.A. Hut in France for six months. His three remaining sons are all in the Forces. Lieut. Beck joined the Public Schools Battalion just after the outbreak of the war. After fighting in France for six months, he returned home and received his commission in the Machine-gun Corps.

THE Earl of Sandwich's extensive estate at Hooke, in Dorsetshire, will come under the hammer on Wednesday, June 6, at Dorchester, Messrs. Henry Duke & Son having received instructions to sell from his lordship. Hooke is an agricultural, sporting and residential domain of 5,175 acres. It is twelve miles from Dorchester and five miles from Maiden Newton Junction on the G.W.R. The mansion, Hooke Court, dates from the Tudor period, and stands at a height of 550 feet above sea-level.

ALTHOUGH a young man of slender means, the Indian architect of the Indian Memorial which is to be erected on the Downs, near Brighton, was very reluctant to accept any fee for his work. In expressing their appreciation of the beauty of the design, the Brighton Town Council sent him a cheque for twenty-five guineas for out-of-pocket expenses. The canopy and pillars of the memorial are to be of Sicilian marble, the platform and central steps of blue Forest of Dean sandstone, and the outer wall of Scaynes Hill sandstone.

A MEETING of the Joint Committee of the Institute of Architects and the Dublin Industrial Development Association was held on the 3rd inst. at the D.I.D.A. Offices, 9 Dawson Street, Dublin, Mr. R. Caulfeild Orpen, F.R.I.A.I., in the chair. The meeting very fully discussed the permanent exhibition of Irish building materials now being assembled at the National Museum. Measures for its early completion were agreed on, and on the motion of Mr. Lynch steps were directed to be taken for the compilation of an exhaustive list of Irish producers and craftsmen.

AT a meeting of the Gladstone Memorial Committee held in Edinburgh, the formal completion of the work was reported, and general satisfaction was expressed with the memorial as a notable work of art. Recognition was made of the services of the sculptor, Mr. Pittendrigh Macgillivray, R.S.A. The cost of the memorial was £6,718. The committee was first formed in 1899, and Sir Mitchell Thomson is the only remaining original member. Sir Thomas Hunter has acted as clerk to the committee throughout the whole period.

THE opening of the Exhibition of Lady Butler's pictures "Glimpses of the Great War" at the Leicester Galleries will take place to-morrow May 12. As has already been stated, Lady Butler is presenting the proceeds of the sale of these water-colours to the Lord Roberts's Memorial Fund for Workshops for Disabled Soldiers and Sailors. On the same date a second edition of Lieut. Handley-Read's pictures of "The British Firing Line," which have met with so much favour, will be shown. A number of new drawings will be included. The admissions to both Exhibitions will be devoted to the Lord Roberts's Memorial Fund.

A CONFERENCE between the representatives of the Edinburgh Master Builders' Association and the Operative Joiners' Union was held on the 7th inst. to consider the question of country money and the wages of apprentices. An offer was made by the employers, and the men's representatives intimated that they would consult with the members of the union regarding it. Negotiations are also proceeding between the masters and the masons, bricklayers, and labourers, and it is expected that an agreement will be come to.

FALLODON HALL, Northumberland, the ancestral home of Viscount Grey, which was destroyed by fire, was a large red brick mansion, standing amid a beautiful park and woodland, a mile or two from the sea. It had been the seat of Lord Grey's family for more than two centuries, having been purchased in 1707 by Thomas Wood, whose daughter and heiress, Hannah, married Sir Henry Grey, the first baronet. Earlier it had been in possession of the Lawson family. Sir Ralph Lawson was squire of Fallodon in Queen Elizabeth's reign.

THE death is announced of Mr. William H. Byrne, architect, Dublin. Mr. Byrne was for many years a prominent figure in the city life of Dublin, and was well known throughout Ireland. He occupied a high place in his profession, and was remarkable for industry and the ability with which he discharged the duties with which he was entrusted. Much of his time was devoted to ecclesiastical work, and in almost every diocese in Ireland churches have been erected under his supervision, and in accordance with his graceful designs. He was architectural adviser to the Lunacy Inspectors and the Congested Districts Board. His ability was generally recognised, and his work was widely known and appreciated. By members of his profession and by a much larger circle outside the ranks of that profession his death will be sincerely regretted.

THE Bridgewater Canal, which the Government are now taking over, is a monument to the constructive ability of James Brindley, who was engaged by the Duke of Bridgewater to carry out the work. Brindley was the son of a small farmer, and was born at Thornsett, near Chapel-en-le-Frith. At the age of seventeen he was apprenticed to a millwright at Sutton, near Macclesfield. On the death of his employer Brindley moved from Macclesfield to Leek, where he began business as a mechanical engineer. He was at one time employed by the Wedgwoods, then small potters, to construct machinery for their works. Brindley has been described as "a heaven-taught engineer." He remained all his life an illiterate man, being scarcely able to write, and quite unable to spell correctly. He solved most of his engineering problems without the aid of written estimates or drawings, and whenever he had a specially difficult piece of work to consider he would go to bed and think it out there. It has been estimated that he laid out or superintended the construction of over 365 miles of waterways.

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THE
Architect and Contract Reporter.
FRIDAY, MAY 18, 1917.

EDITORIAL NOTICES.

The Editor will always be pleased to examine drawings or articles with a view to publication, but cannot be responsible for the safety of those sent, though every reasonable care will be taken. Contributors desiring payment should clearly state their wishes. No payment will be made until after publication, and a commission to prepare articles or drawings does not necessarily imply acceptance or approval.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

We have upon our staff a very eminent Barrister, who will be glad to answer in the columns of this paper any legal question that may be of interest to our readers. All letters must be addressed "Legal Adviser," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

CONTRACTS OPEN.

ASFORDBY (LEICS.).—May 30.—For the construction of a sewer for the Melton Mowbray R.D.C. Mr. A. H. Marsh, clerk, Melton Mowbray.

DUBLIN.—May 24.—For the erection of dwellings and the execution of other works on the first section of the Spitalfields area. Deposit £2. Mr. Edmund W. Eyre, City Hall.

EDMONTON.—June 5.—For certain works of painting, cleansing, distempering, &c., to three schools within their district for the Edmonton U.D.C. Deposit £1. Mr. A. Heap, secretary to the Education Committee, Brettenham Road, Upper Edmonton, N. 18.

HALIFAX.—May 21.—The Highways Committee of the Halifax Corporation invite tenders for the execution of private improvement works in Hubert Street for the Halifax Corporation. Deposit £1. Mr. Percy Saunders, Town Clerk, Town Hall, Halifax.

LEEDS.—For erection of a workpeople's canteen, for Messrs. Isles, Ltd., Steam Crane Works, Stanningley, Leeds. Mr. W. Shackleton, architect, Pudsey.

OLDMELDRUM.—May 21.—For the mason, carpenter, slater, and plasterer works of reconstruction of farm dwelling house at Meikie Pitinnan, Mounie, Oldmeldrum. Messrs. Burnett & Reid, 12 Golden Square, Aberdeen.

PONTSARN.—May 22.—For erection of a covered way at the sanatorium, Pontsarn, near Merthyr Tydfil, for the Guardians of Merthyr Tydfil Union. Mr. F. T. James, 134 High Street, Merthyr Tydfil.

ST. HELENS (LANCS.).—May 30.—For erection of a boiler house and other works at the Cropper's Hill power station, St. Helens, for the Electricity Committee. Deposit £1 1s. Chairman of the Electricity Committee, Town Hall, St. Helens.

PORCELAINITE.

WE have an inquiry for this material. Can any of our readers assist us to find the name and address of the manufacturers?

THE Secretary of the War Office announces that the Army Council have taken possession of all stocks of imported soft wood held by merchants and agents in the United Kingdom, of 250 standards and upwards. Stockholders are required to make, within seven days a return of such stocks to the Government timber buyer, Mr. Montague Meyer, Palmerston House, E.C., on a form which may be obtained from the Director of Timber Supplies, A.D.T.S.I., Caxton House, Tothill Street, Westminster, S.W. 1.

TENDERS.

BOSTON (LINCS.).

For rebuilding Baker's Bridge at Frampton Fen, for the Boston Rural District Council.

J. W. PINDER & SON, Boston (*accepted*)	£627 0 0

HERTFORD.

For external painting and repairs at Weights and Measures Office, Hertford, for the Herts County Council.

R. GINN & SON, Hertford (*accepted*)	£39 17 6

IRELAND.

For the painting of the interior of Killinagh Church, Blacklion.

T. NELSON, 19 East Bridge Street, Enniskillen (*accepted*)	£37 10 0
J. Bloomfield, Brookeborough	34 0 0
J. J. Lunny, Blacklion	29 0 0

KEIGHLEY.

For erection of a recreation hall at the Fell Lane Auxiliary War Hospital, Keighley. Messrs. MOORE & CRABTREE, York Chambers, Keighley, architects.

I. TAYLOR, Lees, near Keighley (*accepted*)	£545 0 0

LONDON.

For supply of six auto-transformers for use in connection with the proposed additional supply of power in the Woolwich district, for the London County Council.

BRITISH ELECTRIC TRANSFORMER CO., LTD., Hayes (*accepted*)	£596 5 0

For supply and laying of high and low tension cables, &c., in connection with the additional supply of power for the Woolwich district, for the London County Council.

British Insulated and Helsby Cables, Ltd., Prescot, Lancs.	£26,492 17 6
Siemens Bros. & Co., Ltd., Charlton	25,799 3 7
WESTERN ELECTRIC CO., LTD., North Woolwich (*accepted*)	24,921 17 0
General manager's estimate	25,000 0 0

SCOTLAND.

For work and supplies for the Glasgow Electricity Committee.

Accepted tenders.

Fraser & Chalmers, Erith, supply of one set of turbo-alternators, &c.	£94,678 0 0
British Westinghouse Electric and Manufacturing Co., Trafford Park, Manchester, supply of one set of turbo-alternators, condensing plant and transformers	91,564 0 0
Underfeed Stoker Co., London, fitting stokers and fans on four boilers	3,533 0 0
Barrowfield Ironworks, Ltd., provision of mild steel chimney at Port Dundas station	1,075 0 0

For painting and cleaning offices in Carlton Place, for the Govan Parish Council.

PAUL & SONS, Paisley Road (*accepted*)	£192 14 0

For erection of new bridge at Kilfinnan, for the Lochaber District Committee.

D. LIVINGSTON, Fort William	£217 15 1

WALES.

For works in Hafod Street (part of), for the Swansea Town Council.

EMERY & Co., Holte Road, Aston, Birmingham (*accepted*)	£84 8 5

WITH reference to the report in our last issue of the destruction by fire of Copped Hall, Epping, on May 6, it is of interest to add that the jewel safe and the plate and deed room installed there some years since by Messrs. Hobbs, Hart & Co., of 76 Cheapside, E.C., have both passed most satisfactorily through the severe test to which they were subjected.

THE Army Council have issued an order restricting the sale of Russian timber. No timber bought in Russia before January 1, 1917, is to be sold or offered for sale otherwise than to the Director of Timber Supplies or to persons authorised by him. The price is not to exceed by more than 10 per cent the price at which the owner bought it. The order does not apply to any timber now in stock in the United Kingdom.

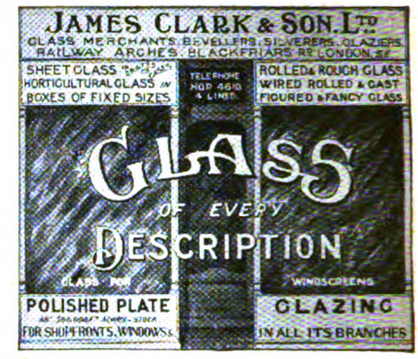
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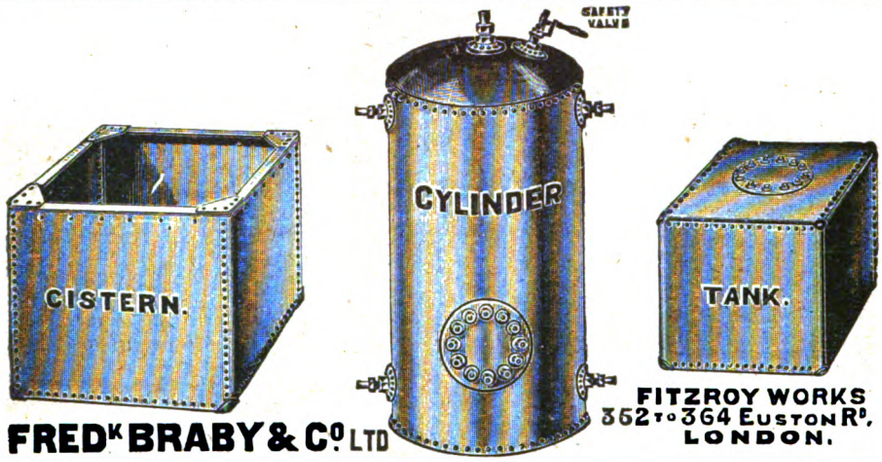
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CHARING CROSS RAILWAY BRIDGE.

THE Parliamentary Committee of the London County Council report as follows:—

On February 6, 1917, we reported that the South-Eastern and Chatham Railway Companies Managing Committee had given notice of their intention to introduce into Parliament, during the session of 1917, a Bill entitled the South-Eastern and London, Chatham and Dover Railways Bill, which was substantially the same as that introduced last session for altering and strengthening Charing Cross bridge. We then reported with regard to the position of the Council in the matter, and the Council resolved to oppose the Bill with the object of securing the insertion of clauses providing that in the event of any future public improvement dealing with Charing Cross station and railway bridge no claim should be made by the companies in respect of any money expended in strengthening the bridge or of any advantages conferred by or resulting from the expenditure of this money or from the passing of the Bill, and providing for the protection of the Council's property and interests. The Bill was introduced in the House of Commons, and a petition in accordance with the Council's resolution was presented.

The principal points raised in the petition were the necessity for amendments to provide for the sterilisation of the expenditure upon the works in accordance with the Council's resolution; for the widening of the Strand in accordance with section 20 of the South-Eastern and Chatham Railway Companies Act, 1900; and for the protection of the Council's interests in relation to tramways, sewers, &c.

The second reading of the Bill was taken on March 13, and was carried by 184 votes to 56 votes. A committee of the House of Commons, presided over by Sir Godfrey Baring, considered the Bill on April 25 and 26, when Mr. Freeman, K.C., appeared for the Council. The questions relating to the protection of the Council's interests in respect of tramways, sewers, &c., were settled by negotiation, and the only points on which it was necessary to take the decision of the Committee were the question of a "sterilisation" clause and the necessity for a clause reserving to the Council the advantages arising under the provisions of the Companies Act of 1900 with regard to the widening of the Strand between Villiers Street and Craven Street. In place of the "sterilisation" clause submitted by the Council, the promoters offered to insert an alternative clause which had been drafted at the instance of the Chairman of Committees of the House of Commons, after a conference which had been held for the purpose of settling the points at issue. Under this clause the sum of £167,000 was to be deducted from any compensation due to the companies on the acquisition of Charing Cross station and bridge within ten years of the passing of the Bill. The clause was strongly opposed by the Council, and after evidence had been given on behalf of the promoters and counsel for the Council had addressed the Committee, the Committee accepted the clause put forward by the Council, with the addition of words limiting its operation to fifteen years after the passing of the Bill. The clause inserted is as follows: "In the event of any public improvement being carried out within fifteen years from the passing of this Act for the purposes of which it may be necessary to purchase or acquire Charing Cross station and railway bridge, or either of them, the company and the managing committee, or either of them, shall not be entitled to bring into account, or to make any claim, or receive compensation in respect of any money expended by them on strengthening the said bridge, or of any advantages conferred by, or of any benefits resulting from the passing of this Act."

With regard to the clause before referred to relating to the widening of the Strand, Sir Francis Dent, general manager of the companies, during his evidence, stated that it was intended to renew, from time to time, the powers to construct the work on which the widening contemplated by the Companies Act of 1900 depended. In these circumstances, the proposal for an amendment on this point was not proceeded with, and counsel for the Council, in his address to the Committee, made the following statement: "Sir Francis Dent has this morning unequivocally pledged himself and his company that those powers are going to be kept alive and used, and that, of course, changes the position very much, and I think, speaking on behalf of the County Council, that I ought to be content to accept that, because it is a pledge given by a responsible representative of the responsible company before you and your Committee, and if the railway company change their mind afterwards and do not carry that out, then I should have a very good ground for coming to Parliament and asking to have those powers revived."

In addition to the clauses and amendments for the protection of the Council's sewers, tramways, and other property, amendments were agreed to requiring the consent of the Council to temporary works affecting Victoria Embankment and to any temporary interference with Charing Cross footbridge. The promoters also agreed to construct, at their own cost, a public stairway giving access to the footbridge from the river side of the embankment, the Council providing the site. The Bill was passed by the Committee.

BRITISH PATENT SPECIFICATION.

Selected by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the completed specification.

No. 104,917 (March 22, 1916).—Oliver Beck, Cassiobury Works, Watford; and the Van Kannel Revolving Door Company, Ltd., 62 New Broad Street, E.C.—This invention relates to sliding locking bolts for doors, casements, and the like. The bolt is so constructed that on the sliding locking bar or bolt proper called the locking bar being moved by hand into the locking position it is rigidly retained against hand retraction, but is automatically released to permit the door, casement, or the like to be opened when a pre-determined pressure is applied thereto. To this end the bolt may comprise a hollow rectangular box or casing adapted to be attached to the door or casement and containing the sliding locking bar, which latter may be constituted by a substantially rectangular strip of metal. Attached to the locking bar and extending through an elongated slot in the face of the casing is a handle or knob to permit the locking bar to be moved in the usual manner into engagement with a recess or a socket piece in the framework of the door or window. Fig. 1 is a front elevation. Fig. 2 is a part sectional end view, and fig. 3 is a rear view of one form of locking bolt. Fig. 4 is an end view on an enlarged scale of part of the locking bolt shown at figs. 1, 2, and 3. Fig. 5 is a part sectional end view of the locking bolt and its socket piece as applied to an emergency exit door, and figs. 6, 7, 8, and 9 show various forms of socket pieces which may be employed with the improved locking bolt. 1 is the hollow box-like casing containing the locking bar 2. 3 are the flanges for securing the bolt to the inside of the door, casement, or the like, 9, and 4 is the knob or handle attached to the locking bar 2 and which protrudes through an elongated slot 5 in the back of the bolt casing, so that the bolt can readily be moved by hand into the locking position. 6 is an enlarged boss or flange at the forward end of the locking bolt, which, when the bolt is moved into its locked position, is pressed into engagement with the transverse web 7, in the bolt casing 1 by the pressure of the spring 8, so that the bolt cannot be retracted by hand. In view of this arrangement it will be clear that the locking bar 2 will be pressed out of engagement with the web 7 on the bolt casing immediately the necessary pressure to overcome the resistance of the spring 8 is applied in the direction of the

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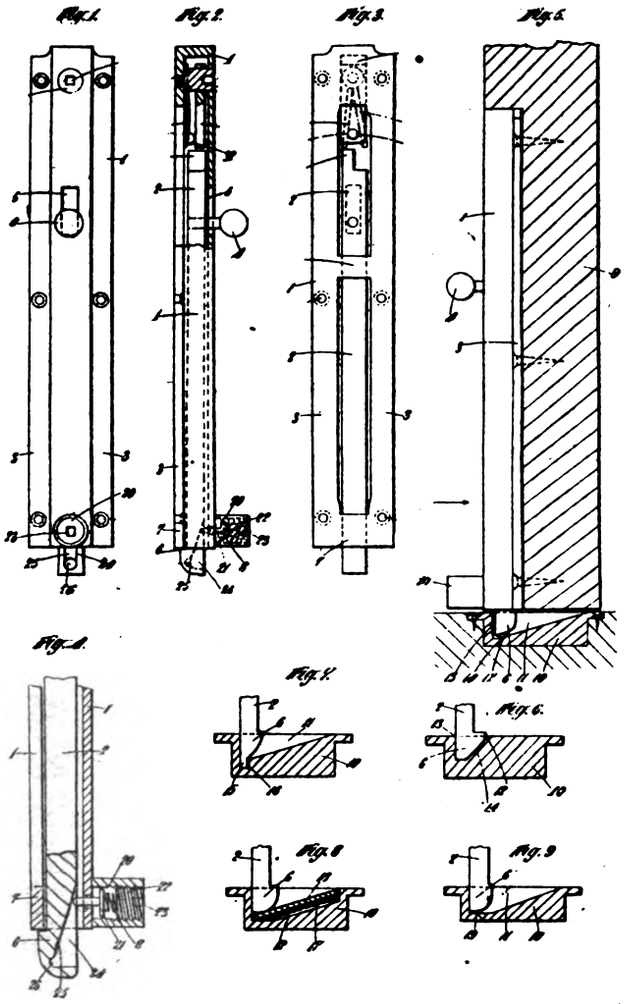
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arrow to the door. When the locking bar is adapted to be shot vertically into its locking position no special form of socket piece need be provided, as the locking bar, when pressed clear of the web in the bolt casing, will fall by its own weight into its inoperative position. In certain cases the locking bar might also be so arranged that it is first released by pressure applied to the door, so that it can be retracted by hand into its inoperative position. The improved bolt, however, is more particularly intended for use with emergency doors or exits which are adapted to be unlocked automatically and to open outwards on pressure being applied from the inside. To ensure this result being achieved in all cases, and especially in cases where the locking bar is adapted to be disengaged by a lateral or by an upward movement, a special form of socket piece is provided. Such socket piece may comprise a metal plate 10 adapted to be secured to the floor or to the framework of the door 9 and formed with a recess 11,



the base 12 of which is bevelled or inclined downwards, as shown from the surface of the plate, to an appropriate depth, the recess terminating in a vertical end wall 13. The inner face 14 of the locking bar—i.e. the face which is contiguous to the door—is also chamfered or bevelled so that when the locking bar is shot into its locking position the plane face of the bar faces the vertical wall of the recess in the socket piece, while the bevelled face rests on the inclined face thereof. The bevel on the locking bar may either be plane or curved. For theatre and like emergency exits, or in cases where great pressure is desirable before the door can be unlocked automatically, the end of the locking bar may have a thin tongue or extension 15 (fig. 1) adapted to engage in a groove 16 at the lower end of the aforesaid recess 11, the said tongue 15 being adapted to be sheared before the door is free to open. A spring 17 of any desired strength may be arranged under a plate 18 located above the inclined base 12 of the socket piece. The inner end of the helical spring, instead of bearing directly upon the locking bar, may rest on a piston or plunger 21 adapted to slide within the hollow internally screw-threaded compartment 20, which also contains the spring 8, the spring 8 and the plunger 21 being retained in position by an adjustable nut 22; which engages within the said compartment 20. The adjustable nut 22, which also regulates the tension of the spring 8, may be locked against unauthorised adjustment or removal by means of a keyhole 23 formed in the nut 22. The face of the locking bar may be provided with a slot 24, having a base 25 which is inclined towards the end of the locking bar. The end of the plunger 21 fits within the inclined slot 24, and by a progressive movement assists in disengaging the locking bar 2 from engagement with the web 7 on the lock casing 1.—April 4, 1917.

PATENT SPECIFICATIONS.

Selected by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

No. 105,344 (April 12, 1916).—C. J. Westrup, "West Dene," 23 Upper Brighton Road, Surbiton. Air gas installations for heating, cooking, and lighting purposes.

105,367 (April 5, 1916).—Bertrams, Ltd., St. Katherine's Works, Sciennes, and R. F. Gillespie, 58 Arden Street, Edinburgh. Machinery for the moulding or manufacture of slabs, tiles, slates and the like.

105,376 (April 6, 1916).—William Millar, 617 Quebec Bank Buildings, Montreal, Canada, and John Pate, of George Anderson & Co. (1905), Ltd., Carnoustie, Scotland. Stone cutting machines.

105,391 (April 10, 1916).—J. A. Nolan, Annaville, Waterford, Ireland. Window opening, closing and like apparatus.

105,443 (May 23, 1916).—Albert Hague, 60 Loxley New Road, Hillsborough, Sheffield. Shade holders for artificial lights.

105,444 (May 23, 1916).—R. W. Sindall and William Bacon, 1 and 2 Oxford Court, Cannon Street, E.C. New or improved method of sizing paper.

105,446 (May 25, 1916).—James Morris, St. Bernard House, Knott End, Fleetwood, Lancs. Stands or holders for branch pipes of fire hose.

105,447 (May 26, 1916).—W. T. Setchell, 23A Monton Green, Eccles, Lancs., roofing contractor, and James Monks, 6 Cross Street, Patricroft, Lancs. Fastenings for securing roofing slates, tiles and the like.

105,464 (June 23, 1916).—A. G. Hanvey, 17 Corporation Street, Belfast. Method of and means for dovetailing.

105,468 (June 26, 1916).—Capt. P. N. Nissen, 29th Co. R.E., c/o Institution of Mining and Metallurgy, 1 Finsbury Circus, E.C. Portable buildings.

105,469 (June 27, 1916).—Rev. G. D. Hughes, Bartram Park, Haverstock Hill, N.W., and Fastnut, Ltd., 115 Newgate Street, E.C. Length measuring scales.

105,487 (July 26, 1916).—Chubb & Sons' Lock and Safe Co., Ltd., 128 Queen Victoria Street, and F. J. Butter, 11 Merridale Road, Wolverhampton. Combination keyless locks.

105,535 (Jan. 13, 1917).—George Halliday, 61 Albany Street, Regent's Park, N.W. Sink and like traps.

105,488 (July 29, 1916).—J. C. Ralls, 30 Rampton Road, Sheffield. Caliper gauges and like measuring instrument.

105,299 (July 29, 1916).—George Allison, 32 Dargai Street, Clayton, Manchester. Attachments to ladders to prevent slipping thereof.

105,304 (Sept. 29, 1916).—F. S. Larkin, of the Gas Light and Coke Co., 35 Harwood Terrace, Fulham. Adjustable flue nozzle for gas fires and the like.

105,319 (June 5, 1917).—W. B. White, 16 Haverholt, Colne, Lancs. Water-heating apparatus for greenhouses, churches and other buildings, also applicable for heating food and other materials.

Any of the above specifications may be obtained from J. D. Roots.

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VARIETIES.

MR. G. ROBERTS, Parliamentary Secretary to the Board of Trade, promises amendments to the Patent Laws.

DAMAGE to the estimated extent of £20,000 was caused by a fire which broke out at the wallpaper works on Thursday last of Messrs. Walker & Carver, Salford, Manchester.

THE stained-glass window erected in Moortown Church to the memory of the late Mr. J. Bower Brooke was dedicated and unveiled last Sunday morning.

MR. E. W. BOOTH, A.M.I.C.E., Surveyor to the Beddington and Wallington Urban District Council, has been called to the Bar at the Middle Temple.

THE Co-operative Wholesale Society, Northampton, are about to erect a tannery and leather dressing works on land adjoining the river.

THE death is announced of Mr. William Goldstraw, for over thirty years building surveyor to the Liverpool Corporation.

FOUR drawings by Alfred Stevens, including the study for "Daniel" at St. Paul's Cathedral, brought £78 (Carfax) at Messrs. Sotheby's.

IT is now prohibited to import into the United Kingdom gum copal and gum kauri except under licence given by the Board of Trade. This affects our varnish-making industry.

MR. JOHN W. EMMOTT, assistant surveyor to the Pontefract Rural District Council, has been selected to fill the office of temporary surveyor to the Leyburn Rural District Council.

WE are asked to announce that the basement of the Masonic Hall at Grimsby, which was a continual source of trouble owing to flooding after heavy rains, has now been remedied with waterproofed Pudlo cement.

THE Blackpool Improvement Bill has been approved by the House of Commons Committee, and it will proceed as an unopposed measure. The Bill provides for the expenditure of nearly £300,000 on various works of promenade improvement and extensions, the construction of two open-air swimming pools, &c.

THE War Losses Commission dismissed after a full hearing a claim for £172 against the War Office by Mr. R. C. Gould in respect of an old Jacobean house in Sussex, which was occupied by the military from November 1914 to February 1915. A sum of £301 had been received for billeting, and the claim was for dilapidation, the claimant declaring that parts of the oak panelling and a number of doors had disappeared and several trees had been cut down. For the military, it was maintained that the troops destroyed this woodwork because they had not been supplied with sufficient coal. The claimant replied that it had been difficult to obtain coal, and that 20 tons at £2 a ton were supplied.

ARCHÆOLOGISTS will learn with mixed feelings that part of the Roman wall running through the western part of Stirlingshire has disappeared. It was discovered the other day that a number of Bonnybridge allotment holders, in their enthusiasm to increase the food supply, had, in the course of their labours, turned up the whole of the base of the Roman wall running from the Caledonian Bonnybridge branch line eastwards to where the Antonine wall takes an abrupt turn to the south. The accumulated amount of stones exhumed totals many tons. It is to be regretted that the allotment holders did not realise that they had struck something unusual when they came across the course of stone and consulted local archæologists, who would have staked off the ground, and thus ensured the preservation of the wall.

IT is officially notified that the responsibility for the control of the road stone quarries in the United Kingdom, which have been taken over under the Defence of the Realm Regulations, has been assigned to a special Committee as follows:—Lieutenant-Colonel A. St. John Cooke (Chairman); Mr. J. S. Killick, A.M.Inst.C.E. (Vice-Chairman); Mr. P. Dodd, M.Inst.C.E., Captain J. F. Hawkins, R.E., Mr. W. Jervis, M.Inst.M. and Cy.E., Mr. H. H. Law, M.Inst.C.E., Lieutenant-Colonel A. S. Redman, R.E., Mr. H. E. Stilgoe, M.Inst.C.E., Mr. W. J. Taylor, M.Inst.C.E.; secretary (pro tem.), Mr. J. B. Harvey. Road stone quarry owners are instructed to carry on their present operations till June 15, or such earlier date as may be fixed by the Committee.

ON the 9th inst. fire broke out in the western wing of Dalnair House, Drymen Station, Stirlingshire, the residence of Mr. H. W. Christie, of the Calico Printers' Association. The flames soon obtained a firm hold of the western wing, and despite all efforts to confine their scope they worked their way eastwards towards the dining-room and the main hall. The efforts of the firemen were directed mainly to saving the fine eastern portion, with its massive tower, but the entire mansion house was doomed. The loss will amount to several thousand pounds. Dalnair, which was one of the finest residences in Stirlingshire, was built in 1884 by Mr. Thomas Brown, Australian merchant, of Glasgow and Brisbane, who had purchased the estate and house, then known as Endrickbank, from Mr. C. H. Wilson's trustees. The old mansion was taken down and a residence built on the site in Scottish baronial style. It was of white freestone from Giffnock Quarries, to designs by Mr. James Bell.

MR. ROBERT NOBLE, who died on Saturday, the 12th inst., at East Linton, in Haddington, in his sixtieth year, was one of the ablest and best known Scottish landscape painters. Trained at the Royal Scottish Academy schools, and in the atelier of Carolus Duran, Mr. Noble was throughout his life always in a "swither," that is, as a Scot he was naturally emotional in temperament, but the logic of his French training upset his national feeling for poetry. So his art failed to reach its fullest development. He had very considerable gifts of colour, which Carolus Duran's influence should have fortified had Mr. Noble's personality been stronger. Still, at his best his work had very considerable charm, and for a time, thanks to the sympathy of Lord Leighton, his pictures were popular in London. They were nearly always pleasant in design, and a rich low tone, obtained unfortunately by diluted glazes of varnish, gave them an Old Master kind of quality that robbed his work of permanence. In more recent years, however, this affectation weakened, and his painting assumed a fresher, more buoyant aspect. Mr. Noble was a member of the Royal Scottish Academy.

THE valuable collection of specimens discovered during the excavation of the Saxon cemetery at Highdown, Sussex, in 1893 by the late Mr. Edwin Henty has been definitely presented by Mrs. Henty to the Worthing Museum. In a letter informing the Mayor of the gift, Councillor W. J. Gardiner, chairman of the Museum Committee, remarked that the collection is of great local and historic value. The late Mr. F. W. Patching had informed him this was the most valuable donation which the museum had yet received. It includes a perfect specimen of a Saxon engraved glass vase, which was coveted by the British Museum, sixteen earthenware cinerary urns, iron swords and spear heads, shield bosses, flint implements, coins, and gold and bronze ornaments. In moving, at a meeting of the Town Council, thanks to Mrs. Henty for her generous and acceptable gift, Councillor Gardiner explained that this Saxon cemetery was some 200 yards west of the Miller's Tomb, and that eighty-six graves were examined, Sir Hercules Reed, an important member of the staff of the British Museum, supervising a good deal of the work, and subsequently reading two papers to the Society of Antiquaries. It was Mr. F. W. Patching, Councillor Gardiner added, who first expressed to Mr. Edwin Henty the hope that Worthing might some day become the home of this valuable collection.

ACCORDING to Mr. Clyde Young, the architect who has drawn up plans for the alterations which are suggested at Wren House, Chichester, now the County Hall, the County Council are to be congratulated on having obtained possession of "such a delightful example of early Renaissance architecture; the house, according to the text-books, is considered an authentic work of Wren. It was, I believe, early in 1690 that the spire of the cathedral was restored by him, and it is more than likely that during the time he was working on the cathedral he carried out other works in the neighbourhood." In making suggestions, the architect's chief object has been to provide as far as possible the accommodation necessary according to modern requirements, without in any way disturbing the atmosphere or character of the premises. The cost of carrying out the various work advised would be approximately £2,000, and the County Council were recommended by their General Purposes Committee to adopt the plan. It was subsequently found, however, that the Minister of Munitions declined to grant a licence for the work at present, though he might be able to if application were renewed in six months' time. Following on this the Council have asked for plans and specifications confined to the electrical installation and the lavatories in the basement, and such other adaptations as will not bring the total cost above £500, and tenders for this work will in due course be invited.

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THE
Architect and Contract Reporter.
FRIDAY, MAY 25, 1917.

EDITORIAL NOTICES.

The Editor will always be pleased to examine drawings or articles with a view to publication, but cannot be responsible for the safety of those sent, though every reasonable care will be taken. Contributors desiring payment should clearly state their wishes. No payment will be made until after publication, and a commission to prepare articles or drawings does not necessarily imply acceptance or approval.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

CONTRACTS OPEN.

ASFORDBY (LEICS.).—May 30.—For the construction of a sewer for the Melton Mowbray R.D.C. Mr. A. H. Marsh, clerk, Melton Mowbray.

BURNLEY.—For alterations at the grammar school, for the Education Committee. Mr. G. H. Pickles, M.I.C.E., borough engineer, Town Hall.

EDMONTON.—June 5.—For certain works of painting, cleansing, distempering, &c., to three schools within their district for the Edmonton U.D.C. Deposit £1. Mr. A. Heap, secretary to the Education Committee, Brettenham Road, Upper Edmonton, N. 18.

HUDDERSFIELD.—June 1.—For the various works required in erection of seventy-two workmen's dwellings (in twelve separate blocks), on the Royds Hall estate, for the Corporation. Town Clerk, Town Hall, Huddersfield.

MAESTEG.—June 7.—For renovating the exterior of Messrs. North's Hall, Maesteg, the Nantyffyllon Library, and the Caerau Library for the Building Committee. E. Watkins, Secretary of the Building Committee, Maesteg.

NEATH.—May 30. For erection of fifty houses at Pentre Street and Avon Street, Glynneath. Edward Powell, 10 South Terrace, Neath.

NORWICH.—June 7.—For exterior repairs and painting to twenty-two houses in Waterloo and Magpie Roads, Norwich, for the Corporation. Mr. A. E. Collins, M.I.C.E., city engineer, Guildhall, Norwich.

ST. HELENS (LANCS.).—May 30.—For erection of a boiler house and other works at the Cropper's Hill power station, St. Helens, for the Electricity Committee. Deposit £1 1s. Chairman of the Electricity Committee, Town Hall, St. Helens.

WIVENHOE (ESSEX).—May 31.—For erection of a public lavatory in the grounds of the Council's offices, High Street, Wivenhoe, for the Wivenhoe Urban District Council. Mr. F. J. Byles, deputy clerk, 8 East Stockwell Street, Colchester.

TENDERS.

BRADFORD.

For supply of timber required for new class-rooms at Thackley Open-air School, for the Corporation.
BEECROFT & WIGHTMAN £100 7 11

CARDIFF.

For erection of timber shed at Crystal Allotments, for the Corporation.
E. R. EVANS & BROS. (*accepted*) . . . £130 0 0

CASTLEREA.

For carrying out the French park sewerage for the District Council.
CASSIDY £1,000 0 0

DUDLEY.

For taking down old buildings at the junction of King Street and Flood Street adjoining Messrs. Timmins & Foulke's premises, also for rebuilding a boundary wall 6 feet high from road level the whole length of premises in Flood Street, for the Public Works Committee. Mr. J. GAMMAGE, C.E., borough surveyor.
W. WILLETTS & SONS, Old Hill, Staffs (*accepted*) £172 5 0

GILLINGHAM (KENT).

For supply of a transformer, for the Town Council.
BRITISH ELECTRIC TRANSFORMER CO. (*accepted*) £137 0 0

GLASGOW.

For painters' work in connection with alterations at 5 Schipka Pass, for the Corporation.
T. LAWRIE & CO. (*accepted*) . . . £123 8 9

GRANTHAM.

For alteration and additions at the Guildhall, for the T.C.
PARKS & SONS £269 4 0

HENNOCK (DEVON).

For repair of Bellamarsh Bridge, for the Hennock Parish Council.
HOWE, Kingsteignton (*accepted*) . . . £55 0 0

LOUGHTON.

For erection of temporary class-rooms in connection with the county high school for girls, for the Essex Education Committee.
J. WHIFFEN & SONS (*accepted*) . . £1,124 12 6

RATHDRUM.

For rebuilding and repairing workhouse wall, for the Guardians.
P. J. COSGROVE, Tigroney (*accepted*) . . £21 0 0

RICHMOND (SURREY).

For repairs to water engineer's residence, for the Corporation.
SPEECHLEY & SMITH (*accepted*) . . . £112 0 0

SOUTH SHIELDS.

For repairing roof of electricity station, for the Corporation.
MELLOWES & CO., Sheffield £215 17 4

WELLS (SOMERSET).

For rebuilding breast wall to bank supporting Castle Cary to Somerton main road at Lovington, adjoining the River Brue, for the Somerset County Council. Mr. G. R. FOLLAND, acting county surveyor, Wells.
FOTHERGILL BROS., LTD., 18 Castle Street, Exeter (*accepted*) £356 16 7

WOLVERHAMPTON.

For supply of cast-iron condenser pipes, for the Town Council.
STAVELEY IRON AND COAL CO., LTD. (*accepted*) £825 0 0

LONDON ASSOCIATION OF MASTER DECORATORS.

A MEETING of the Wages Committee was held at the offices of the Secretary, 14 Queen Victoria Street, E.C., on April 27, when there were present:—Mr. John Anderson, Mr. M. C. Cowtan (President), Mr. J. Milton, Mr. F. Dakin, Mr. C. E. Wilkinson, Mr. C. L. Roberson, Mr. C. E. Campbell, and Mr. Alexander Davidson, Secretary. Mr. John Anderson occupied the chair.

The minutes of the last meeting were read, confirmed and signed.

The men's demands for an increase of pay and a revision of the working rules as from May 21 current were further considered, and with a view to meeting the men the Secretary was instructed to make a conditional suggestion to them on the basis of a war bonus, leaving the revision of the working rules over, but before laying the recommendation before the masters, it was felt desirable to ascertain from the men whether or not the suggestion would be acceptable to them.

IN response to a letter from the Local Government Board, regarding work which may be undertaken after the war, it was suggested that to avoid unnecessary delay when the present restrictions were withdrawn, the Sowerby Bridge District Council should submit proposals as to the re-construction of the baths as soon as possible, so that, if satisfactory, sanction to borrowing could be given when circumstances permitted. The Council have again gone thoroughly into the question, and the feeling is in favour of a complete new site for a large up-to-date swimming bath, and to make use of the present one for ladies and children. The original scheme was estimated at £5,000, which with enhanced prices, will be greatly increased, and numerous alterations in the existing buildings will be necessary. For new sites Underbank Hall and Allan House estates are apparently the most suitable positions offered, and while the former is almost ideal in surroundings, yet the latter is more convenient for those from the many outdistricts who patronise the baths.

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VARIETIES.

THE late Mr. R. B. Wray, builder, of Kingston-on-Hull, left £41,950.

THE death took place at Fernbank, Kirkintilloch, last week, of Mr. John Young, a director of the well-known firm of Cameron & Roberton, ironfounders, of Kirkintilloch.

NEVILLE HALL, Monmouthshire, the residence of the late Marquis of Abergavenny, has been acquired by the County Council for use as an asylum.

THE will has been proved of the late Mr. J. A. Stott at the value of £36,707. Mr. Stott was a partner in the firm of Stott & Sons, architects, 5 Cross Street, Manchester.

VISCOUNT SANDHURST, Treasurer of St. Bartholomew's Hospital, refers in a recent report to the absolute inadequacy of the accommodation of the nursing staff. The cost of a nurses' home will be from £80,000 to £100,000.

THE War Losses Commission adjourned a claim by Mr. G. Gardiner, Oxford, in respect of buildings at Oxford, including a Masonic Temple, taken over by the War Office. He said that he spent £12,000 on the buildings, which were used for gatherings of all sorts.

AT a meeting of the Eton Urban District Council last week a letter was read from Mr. G. Smith resigning his position as Surveyor of Eton. The resignation was accepted with regret, and the Council decided to advertise for a successor.

AT a large and representative meeting held in Arklow it has been decided to take steps for the building and endowing of a cottage hospital, as a memorial to the late Countess of Wicklow, whose untimely death recently was so widely mourned.

ROWLEY CHURCH, Westbury, Shropshire, which is situated on the hills near the border of Wales, was struck by lightning last week. The spire was completely wrecked and the roof of the church set on fire. The fire brigade from Shrewsbury went to the scene, but the church was practically destroyed.

WE regret to announce the death, which took place suddenly last week, of Mr. Peter McEwan, the Editor of our contemporary the "Chemist and Druggist." The late Mr. McEwan, besides being a very gifted journalist, was a prominent pharmacist, and was for some years before he came to London Secretary of the Pharmaceutical Society in Edinburgh.

IN the current month's letter to the diocese the Archbishop of York refers to the large number of war memorials being set up in churches, and says we did not want the great war and the men who had died in it to be commemorated for future generations on walls and windows of our churches by memorials commonplace in design or lettering.

AYR Town Council have approved of a recommendation of the Public Health Committee that the surveyor be instructed to prepare plans for the erection of houses on ground belonging to the Corporation at George's Avenue so that the Council might be in a position to proceed with the building of the houses after the war should that be deemed necessary and advisable.

MR. HERBERT WILLIAM M. WILLETT, head of the well-known firm of contractors, of Sloane Square, Kensington, Hampstead, Chislehurst and Hove, passed away on the 9th inst., at the age of thirty-two years. He was the eldest son of the late Mr. William Willett, apostle of the day-light saving scheme, which has proved of signal benefit to the country, and he took an active interest in the Bill, which became law within a few months after his father's death.

THE death is announced at North Berwick at the age of sixty-eight of Mr. B. Hall Blyth, C.E., chairman of Edinburgh and District Tramway Company. A civil engineer by profession, he was a member of the well-known firm of Messrs. Blyth & Westland, C.E., Edinburgh. On engineering questions he was a recognised authority, and as an expert witness both in Scotland and at Westminster his opinions carried great weight.

A MEMORIAL to the sailors and soldiers buried in the Higher Cemetery, Exeter, has been dedicated by the Bishop of Crediton. The memorial, fixed in the space reserved for the graves of soldiers and sailors, consists of an alabaster cross inscribed with "I.H.S.," surmounting a base of dark fumed oak. One part of the roll of honour attached contains the names of sixty men who died in local hospitals and were buried in the enclosure.

WITH great regret we announce the death of Major Alastair C. B. Geddes, killed in action, the elder son of Professor Patrick Geddes, who is at present in India. In the spring of 1915 he joined the Kite Balloon Service of the R.N.A.S, and in 1916 transferred to the same branch of the Royal Flying Corps. Last December he was promoted to the rank of Major, and in January was awarded the Military Cross. He had seen twenty months of active service when killed in action on April 19, 1917. He was twenty-five years of age.

THE South Western Board of Conciliation of the building trades at Cardiff have granted advances of wages to the operatives of Merthyr, Pontypridd and Aberdare of 1½*d.* per hour in some cases and 2*d.* per hour in other cases. The operatives demanded a flat rate of 1*s.* 0½*d.* per hour for skilled men and 10*d.* per hour for labourers. The following agreement was arrived at:—Plumbers, plasterers, carpenters, masons and bricklayers 11*d.* per hour in the three towns, painters 10*d.*, and labourers 8½*d.*, to date from May 1. The Aberdare application to cease work at 12 o'clock on Saturday was granted.

THERE passed away, on the 12th inst., at his residence, "Lamberhurst," Paragon Buildings, Cheltenham, Edward Dimmack Marten, M.A. Cantab., late Civil Engineer, and for a long period engineer to the Severn Commissioners and to other public bodies. The deceased gentleman was the eldest son of Henry John Marten, C.E., and was born in 1855 at his father's residence, Penn Hall, near Wolverhampton. He was in partnership with his late father as a Parliamentary engineer, and afterwards practised alone. He was concerned in most of the important Parliamentary Bills on Water Supply up to 1899.

AT the meeting of the Malvern Hills Conservators, on Monday, in reply to the request from the Board for further information with respect to the proposals put forward by the Wayside Cross Society, on behalf of a lady who wished to remain anonymous, that a cross should be erected on the Malvern Hills as a memorial of those who have fallen in the war, Mr. Temple Moore, of Hamsptead, now submitted a design. The design was originally proposed to be carried out in stone, but there was an idea now of having the Cross and Figure in wood, with a stone base. The cost would be £200. It was proposed to erect the memorial on the hills at West Malvern. The matter has been adjourned for a month, to ascertain the feeling of the people of West Malvern, as there is some doubt as to a possible wounding of the susceptibilities of certain shades of religious thought.

MR. R. GORDON NICOL, C.E., Aberdeen Harbour Engineer, reports that the new south breakwater has sustained considerable damage during the recent storms this year, and that repairs will have to be carried out immediately. The weather has been so stormy since the damage was done that it is only recently that a close examination of the extent of the damage could be made. The chief damage occurs at the north end of the breakwater under the tower, where the concrete and ashlar facing have fallen away, exposing the interior over an area about 20 feet wide by 20 feet high above low-water level, and extending inwards about 3 feet at places. There is also a portion of the sea face at low-water level which has been carried away by the waves, leaving a breach about 25 feet long by 6 feet high, and of varying depth up to 4 feet. Steps are being taken to repair the damage.

AT a special meeting of the Bridges and Roads Committee of the Kent County Council it was explained that the Ministry of Munitions had complained to the Road Board of the insufficiency of a length of main road at Crayford, between the river and railway bridges, for the traffic connected with some important munition works. The Road Board estimated the cost of widening and repair at £10,000, but the Committee considered the figure would exceed this, and recommended that the Council intimate that they would go forward with the proposal and contribute one third of the cost, not exceeding £3,500, on condition that the Road Board advanced them a loan of £3,000 free of interest, to be repaid by instalments spread over three years, and that the balance of the cost was guaranteed by the Road Board and the Ministry of Munitions. It was also advised that the Board and the Ministry should guarantee the labour.

TRADE NOTES.

MESSRS. W. R. PICKUP & CO., LTD., of Pearl Brook Works, Horwich, Lancs., have just issued a well got-up catalogue of their excellent enamelled fireclay sanitary fittings, the illustrations in which are particularly well produced. The firm will be pleased to send a copy to any of our readers on application.

BOYLE'S latest patent "air-pump" ventilators, supplied by Robert Boyle & Son, ventilating engineers, 64 Holborn Viaduct, London, have been employed by the Rowley Regis Urban District Council, Old Hall, Staffordshire.

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THE
Architect and Contract Reporter.
FRIDAY, JUNE 1, 1917.

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We have upon our staff a very eminent Barrister, who will be glad to answer in the columns of this paper any legal question that may be of interest to our readers. All letters must be addressed "Legal Adviser," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

TENDERS, ETC.

**** As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.*

CONTRACTS OPEN.

BURRY PORT (CARMARTHEN).—June 4.—The Welsh Town-planning and Housing Trust, Ltd., invite applications from building contractors desiring to tender for all or any of the sections comprising the first 100 houses to be erected forthwith at Burry Port. Deposit £2 2*s*. Acting Secretary and Architect, 32 Park Place, Cardiff.

COTT (LLANFFLEWYN).—June 6.—For repairs and additions to farmhouse and buildings at Cott, in parish of Llanfflewyn, for the Anglesey County Council. Mr. W. O. Jones, clerk of County Council, Llangefni.

DUBLIN.—June 11.—For fitting up new offices for the City Architect's Department in Lord Edward Street for the Estates and Finance Committee of the Corporation. Deposit £1. Mr. Edmund W. Eyre, City Treasurer, Municipal Buildings, Dublin.

EDMONTON.—June 5.—For certain works of painting, cleansing, distempering, &c., to three schools within their district for the Edmonton U.D.C. Deposit £1. Mr. A. Heap, secretary to the Education Committee, Brettenham Road, Upper Edmonton, N. 18.

HORSHAM.—June 4.—For construction of about 185 yards of 9-inch stoneware sewer, 58 yards of 9-inch cast-iron sewer and small sewage filter and tanks in the Parish of Warnham, for the Horsham Rural District Council. Mr. F. Fraser Haddock, 9 Carfax, Horsham.

MAESTEG.—June 7.—For renovating the exterior of Messrs. North's Hall, Maesteg, the Nantyffyllon Library, and the Caerau Library for the Building Committee. E. Watkins, Secretary of the Building Committee, Maesteg.

MANCHESTER.—June 7.—For repairing and relaying the slating to a portion of the roof over No. 2 retort house at their Gaythorn station, for the Gas Committee. Mr. F. A. Price, superintendent, Gas Department, Town Hall.

NEWPORT (MON.).—June 9.—For construction of Newport Light Railway, Section No. 2, for the Corporation. Deposit £3 3*s*. Mr. Albert A. Newman, Town Hall, Newport, Mon.

NORWICH.—June 7.—For exterior repairs and painting to twenty-two houses in Waterloo and Magpie Roads, Norwich, for the Corporation. Mr. A. E. Collins, M.I.C.E., city engineer, Guildhall, Norwich.

TENDERS.

BOSTON (LINCS.).

For rebuilding Baker's Bridge at Frampton Fen, for the R.D.C.

J. W. PINDER & SON, Boston	£627 0 0

BRISBANE (QUEENSLAND).

For supply of plant, for the Public Works Department.

Accepted tenders.

Brisbane Electric Co., high-speed engines and electrical plant for Goodna Hospital	£4,055 0 0
Edison Swan Electric Co., Ltd., storage battery	1,281 0 0

KEIGHLEY.

For erection of a recreation hall at the Fell Lane Auxiliary War Hospital, Keighley. Messrs. MOORE & CRABTREE, architects, York Chambers, Keighley.

I. TAYLOR, Lees, near Keighley	£545 0 0

LONDON.

For supply of 50,000 pairs of carbons, for the St. Pancras Borough Council.

Engineering and Arc Lamps, Ltd.	£798 15 0
Wells Electrical Co.	768 15 0
Geipel & Co.	693 15 0
British Central Electrical Co., Ltd.	630 0 0
Crompton & Co., Ltd.	562 10 0
GENERAL ELECTRIC CO., LTD. (*accepted*)	505 0 0

For supply of induced draught plant to the electricity generating station, for Hammersmith Borough Council.

Underfeed Stoker Co.	£3,271 0 0
Davidson & Co., Ltd.	2,946 0 0
J. Keith & Blackman & Co., Ltd.	2,720 0 0
Matthews & Yates, Ltd.	2,260 0 0
MUSGRAVE & Co., LTD. (*recommended*)	1,563 15 0

R. J. Hodges & Co., Southall, steam turbines, £650. The tenders submitted by Musgrave & Co., Ltd., and Matthews & Yates, Ltd., do not include the cost of an electrical motor for driving the second fan, so that the sum of £560 (the amount quoted by J. Keith and Blackman & Co., Ltd., as the cost of this machine) must be added to the above prices in order to obtain comparative costs.

SYDNEY.

For supply of four electrically driven induced-draught fans at Ryde pumping station, for the Metropolitan Board of Water Supply and Sewerage.

R. Wildridge & Co.	£4,895 0 0
Noyes Bros., Ltd. (alternative)	2,040 0 0
FERRIER & DICKINSON (*accepted*)	1,950 0 0
Noyes Bros., Ltd.	1,730 0 0
H. P. Gregory & Co.	1,480 0 0
Estimate	1,360 0 0

ONE penny an hour advance has been awarded the London building trade workers by the arbitrator. The men claimed an increase of 2*d*. an hour when engaged on munitions work.

THE 100,000-gallon reservoir at Severalls Asylum built some time ago has been under constant observation by the engineer owing to the fact that this was the first contract upon which he had specified waterproofed cement. The powder Pudlo was the medium utilised, and we are informed that the engineer has written to say the results are perfectly satisfactory.

SUB-LIEUTENANT GEOFFREY C. BOWLES, R.N.V.R., who fell on April 25, in his twenty-first year, was the third son of Mr. Charles W. Bowles, F.R.I.B.A., of Sevenoaks. He joined the Inns of Court O.T.C. early in 1915, and was commissioned in the same year, being attached to the R.N. Division. He was sent to the Front in November last, where he was assistant bombing officer. His commander writes:—"During the whole time he was in this Battalion he proved to be invaluable to us, and we miss him now more than it is possible to say. During this big attack he showed the greatest bravery, and right up to his death he showed that fine leadership which helps so enormously to bring about a successful operation." His brother, Second-Lieutenant Bernard G. Bowles, the Buffs, fell in action on September 3 last.

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STEEL ROOF AND BRIDGE BUILDERS,
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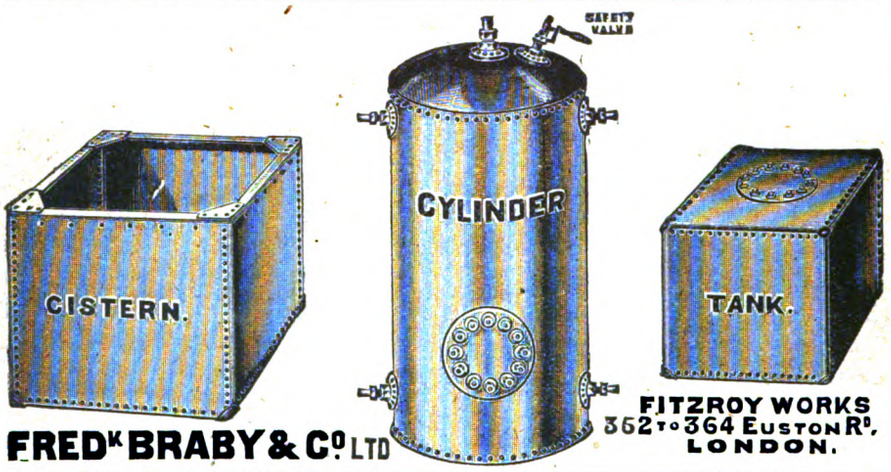
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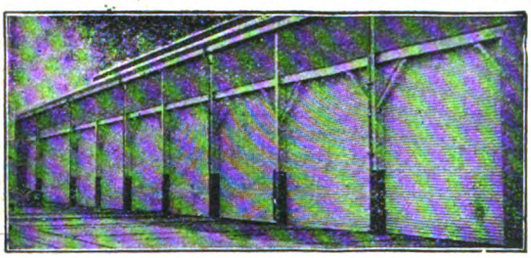


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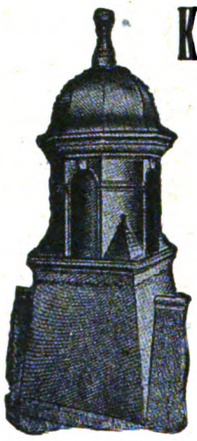
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RUSSIA'S PROGRESS.

AT the present juncture it is most unfortunate that our news service from Russia is so inadequate and one-sided. Probably it is inevitable in the circumstances; the newspaper correspondents are located in Petrograd, and the daily phases of political ferment loom much larger than the quiet, unostentatious work going on behind the scenes. Unfortunately, such reports are those which have gained the chief currency out of Russia. For the time being Russia is the freest country in the world—there is no censorship, no ban on public meetings or free speech, scarcely any police to keep order. Imagine what would happen if a simlar situation existed here. We should have pacifist and Socialist demonstrations daily, while the people who were getting on with their work would be silent, and the country might easily be represented as mainly composed of stop-the-war fanatics. That is what is happening in Russia, and agitators, gorging on their newly-won freedom, are letting off vast quantities of steam which makes a lot of noise but is mainly quite harmless. It is perhaps just as well that the steam should be let off; at any rate, it cannot be stopped at present.

But, meantime, we hear absolutely nothing except through private channels of the excellent work the Provisional Government has already accomplished. It has reorganised transport and supplies so effectively that food prices have fallen 200 to 300 per cent. In every village and township arrangements are being made to set up schools for elementary and technical education, which previously could only be done by the express sanction of the Central Government, with the result that in most cases it was not done at all. And preparations are on foot for establishing no fewer than forty-five technical universities to which the poorest students will have access if they show the requisite ability. One of the most wonderful features of the revolution is that almost its first, and certainly its most important, work has been the tackling of the education problem with a whole-hearted zeal that is quite amazing. Evidently the leaders of public opinion believe that a well-educated proletariat is the surest and safest way to real progress.

It is very necessary that the British public should know these things, so as to form a just and proper opinion of what is happening. Liberated Russia looks more to Britain for help and guidance than to any other country, but we are, quite unwittingly, no doubt, doing our best to nip the growing friendship in the bud. Already the tone of some of our newspaper articles has created first dismay and then a certain revulsion of feeling against us, and German agents are not backward in making the utmost use of the weapon we have placed in their hands. That is truly a deplorable state of affairs. After the war the development of Russia with its population of 180,000,000 will provide almost unlimited trade openings, and it is of the utmost importance in order that we may secure a proper share—it will be the lion's share—to treat the present troubles in a sympathetic and friendly spirit. That mistakes will be made before settled government is firmly established must be expected, and fair criticism will be welcomed rather than otherwise, but, at any rate, it ought to be based on a broad and generous view of the situation as a whole, and not merely on the passing and less pleasing symptoms.

THE adornment of the chancel and sanctuary of the church of Coln St. Aldwyn, which the Countess St. Aldwyn and her daughters have carried out as a memorial to the late statesman, his son, Viscount Quenington, and Viscountess Quenington, was dedicated on Ascension Day by the Archbishop of Canterbury. The reredos is richly canopied, and in the niches are placed figures of various saints. It is surmounted by a very fine draped figure of Our Lord on the Cross, standing on a globe with a serpent beneath His feet. The whole of the work is of the Perpendicular style, and was designed by Mr. F. Bligh Bond, F.R.I.B.A., and executed by Messrs. R. L. Boulton & Sons, Cheltenham.

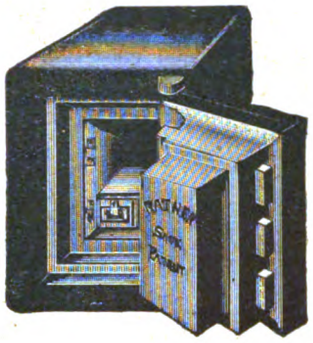
BRITISH PATENT SPECIFICATION.

Selected by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the completed specification.

No. 105,108 (March 30, 1916).—Stirrups or Shear Members as used in Reinforced Concrete Structures. The British Reinforced Concrete Engineering Co., Ltd., and E. B. Hall, all of 1 Dickinson Street, Manchester.—This invention relates to stirrups or shear members as used in reinforced concrete structures of the kind made substantially U-shape and adapted to be secured at the bend to the reinforcing bar at any point along its length, with the arms projecting therefrom. The object of the present invention is to facilitate and expedite the application of the said stirrup members to the reinforcing bar. A series of the stirrup members are joined or connected together at suitable distances apart in such manner as to facilitate the handling of the series of stirrup members, and the attachment thereof, at the bend, to the reinforcing bar as a single stirrup. The "compound" stirrup thus produced is made to a length which allows of two or more stirrups being applied in the length of a reinforcing bar, the number and position of the stirrups varying with the desired reinforcement or other requirements. The improved "compound" stirrups will preferably be electrically welded, the longitudinal wires when bent forming the stirrup members and the transverse wires forming the connecting wire of the compound stirrup. Fig. 1 is a plan or face view, and fig. 2 an edge view of a piece of electrically welded wire fabric compound stirrup. Fig. 3 is an end view of the fabric after being folded to form the improved stirrup. Fig. 4 is a side view of fig. 3. Fig. 5 shows a modification of the improved compound stirrup, fig. 6 one of the forms of the improved compound stirrup and two methods of securing the stirrup to a reinforcing bar. Fig. 7 is an end view of fig. 6, fig. 8 shows another use of the improved stirrup. Fig. 9 is a side view of the compound stirrup members arranged at graduated distances apart. Fig. 10 is a side view, and fig. 11 an end view of one of the improved compound stirrups arranged within another and larger stirrup; fig. 12 an alternative method of fastening the improved stirrup to a reinforcing bar. As shown, *a*, *a*, are the longitudinal wires, and *b*, *b*, the transverse wires of the electrically welded fabric. When folded the wires *a*, *a* will form the stirrup members, whilst the wires *b*, *b*, will constitute the connecting wires by which the stirrup members are held together and at the required distances apart. The fabric will preferably be cut and folded so as to cause one of the connecting wires *b*, *b* to lie at the bend of the compound stirrup, and one near to each end of the arm of each stirrup member. In figs. 2 and 3 the stirrup members *a*, *a* are shown at right angles to the connecting wires, but if desired, they may be inclined as shown in fig. 5. In this case, owing to the sloping of the stirrup members, the connecting wires *b*, *b*, which connect the arms of the stirrup members, will, as shown, be slightly kinked to right and left of the wires *a a*. In figs. 6 and 7 this last-described form of the improved stirrup is shown applied to the reinforcing bar *c* of a floor joist or beam. The stirrups are shown fastened to the bar by lashings of wire *d d*. In fig. 8 the improved compound stirrup is shown applied to the reinforcement of a column or pillar, the stirrups converging towards a common vertical axis, and lying at different elevations along the vertical bars *e*. As shown in fig. 9, the spacing of the stirrup members may be graduated, this form of stirrup being chiefly useful in beams and the like, where a greater strength is required towards the ends than at the middle of the beam. In figs. 10 and 11 an example is shown of one compound stirrup arranged within another, and with the stirrup members of one compound stirrup lying intermediate of the stirrup members of the other compound stirrup, this arrangement being advantageous where extra reinforcement is required. In fig. 12 an alternative method is shown of fastening the stirrups

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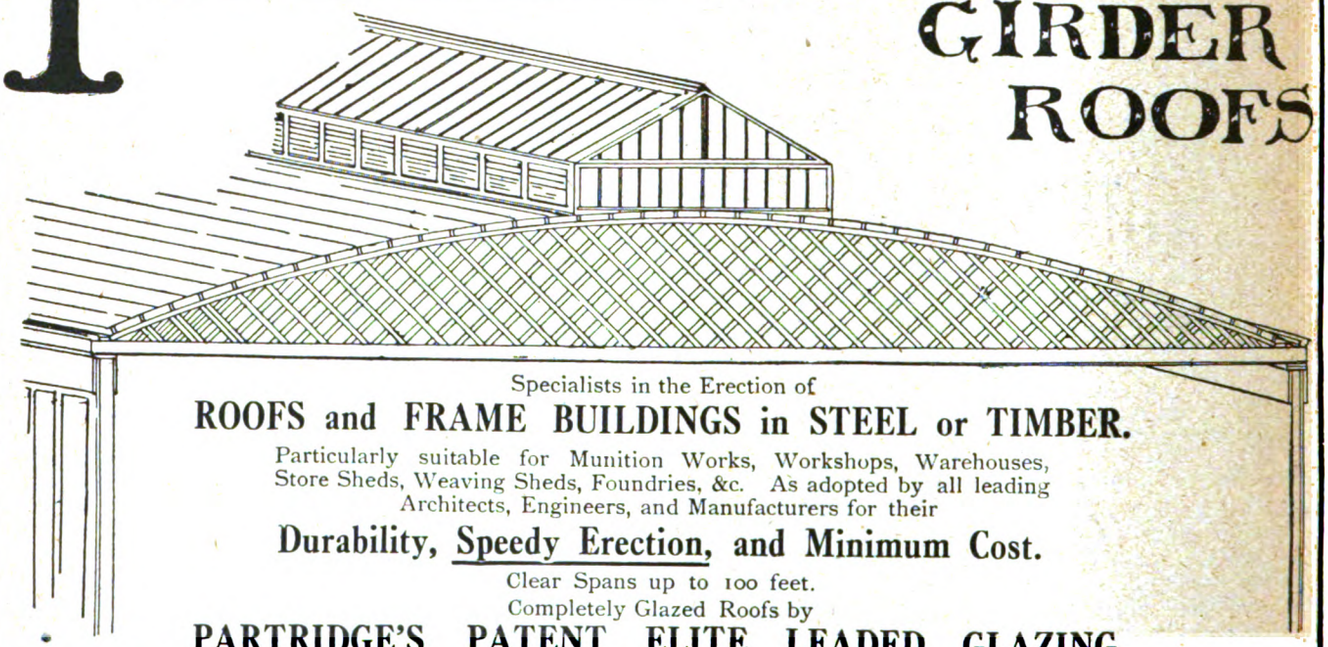
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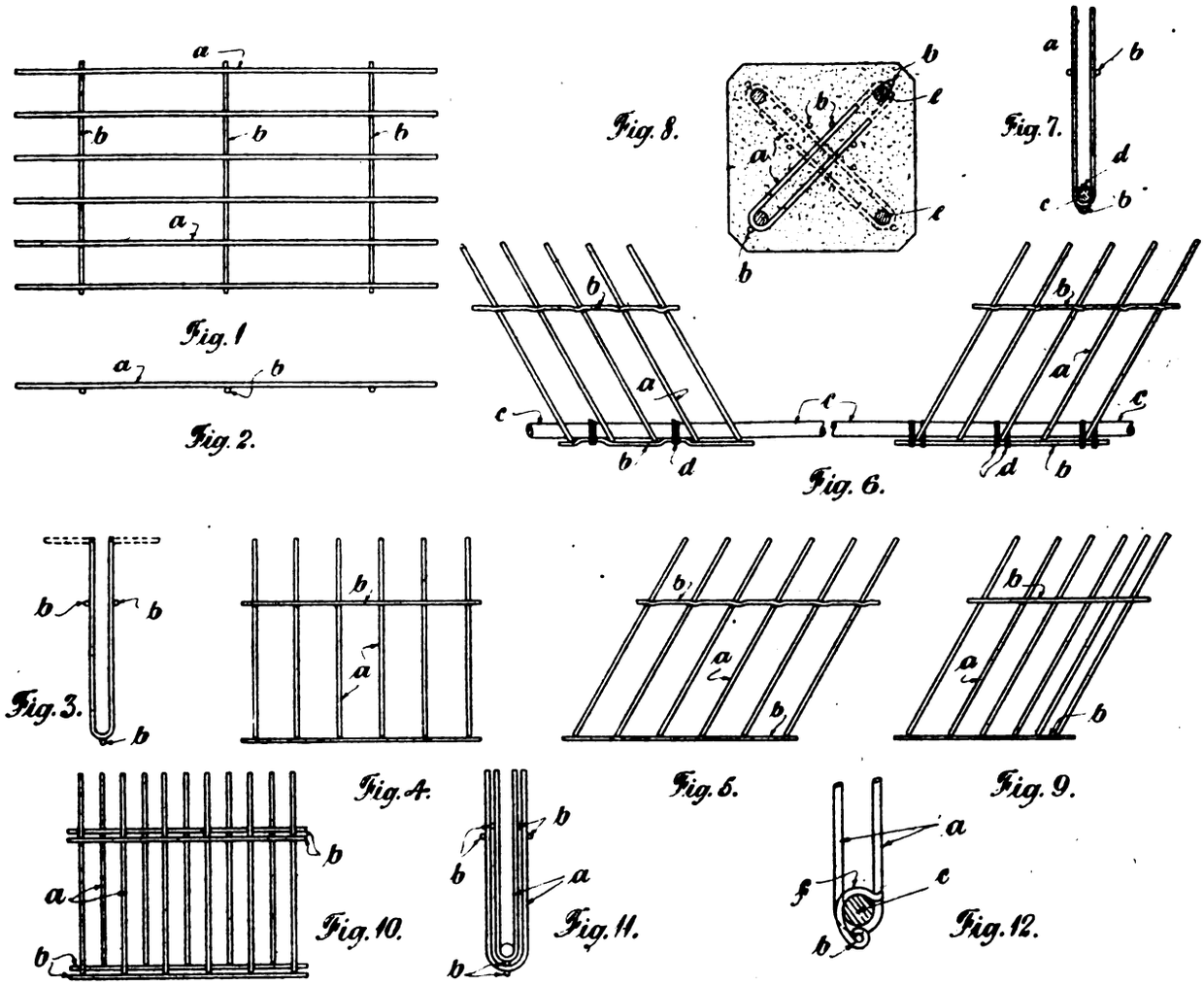
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to the reinforcing bar, such method consisting of two or more hooks *f*, each linked to one of the cross-wires *b* at one end and adapted to lie over the bar *c* at the other end.—April 11, 1917.

PATENT SPECIFICATIONS.

Selected by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

No. 105,574 (Jan. 20, 1916).—Joseph Jones, Yew Tree Farm, near Chester. Automatic fire alarms.

105,584 (May 30, 1916).—E. O. C. Howells, Haynstone, Stoke Park, Coventry. Moulds for the manufacture of building blocks, slabs, tiles, and the like.

105,609 (April 19, 1916).—H. L. Doulton, Lambeth Sanitary Engineering Works, Lambeth, and George Walker, 19 McKerrell Street, Paisley. Flushing valves for closets and the like.

105,621 (April 20, 1916).—Arnold England, M.S.A., Carlton Chambers, St. Annes-on-Sea, Lancs. Construction of slab buildings and structures.

105,645 (May 9, 1916) and 105,646 (May 10, 1916). —The Titanium Alloy Manufacturing Company, 15 Wall Street, New York, U.S.A. Manufacture of composite titanic oxide pigments.

105,651 (May 17, 1916).—W. D. Downie, Redlands, Mill Road, Yoker, Glasgow, and J. W. Cockburn, 44 Victoria Drive, Scotstoun. Joints for pipes and the like.

105,652 (May 18, 1916).—R. W. Sibey, 10 Stanley Street, Newark-on-Trent. Opening device for the doors of lifts and hoists.

105,654 (May 20, 1916).—Thomas Caink, Fort Royal Hill, Worcester. Tanks for the purification of sewage.

105,658 (May 24, 1916).—James Everitt, 11-19 Lever Street, Goswell Road, E.C. Clothes-hanging apparatus for use in wardrobes, trunks, warehouses, and the like.

105,732 (Jan. 2, 1917).—Victor Bollard, 76 Rampe Beuvreuil, Rouen, Seine-Inferieure, France. Method and apparatus for supporting earthworks.

105,713 (Oct. 18, 1916).—F. G. G. Armstrong, The East Riding Garage, North Bar, Beverley. Means for opening doors.

105,717 (Nov. 21, 1916).—D. M. Edwards, 3 St. George's Avenue, Tufnell Park, N. Combined electric plug and switch.

105,725 (Nov. 29, 1916).—R. A. Smith, 78 Palace Chambers, Bridge Street, Westminster. Disconnectible pipe couplings.

Any of the above specifications may be obtained from J. D. Roots.

A STAINED-GLASS window has been placed in the baptistry of the Kirton Parish Church, Lincs., being the gift of Mr. John Speak, the Grange, Kirton, in memory of his sisters, Dorothy and Nancy Speak. The window illustrates Christ blessing little children, and bears the inscription, "Suffer little children to come unto Me." Mr. Speak had previously presented four stained-glass windows now in the south aisle.

IN order to ease the present stringency in the supplies of timber, so far as is possible without sacrificing more important interests, the War Cabinet has authorised the importation, under licence, in neutral vessels, of soft-wood from the countries of Scandinavia, when it will not displace cargoes of foodstuffs or munitions. The Orders which limit the prices of imported soft wood to those current during the last week of January 1917 will not apply to timber imported from Scandinavian countries after May 15. It may be sold by the importers at its cost price, delivered to store, plus 10 per cent., provided that the price so calculated does not exceed by more than a third the price current during the last week of January 1917 for soft wood of similar quality and description in the same locality. It may be sold by persons other than the importers at prices which are in accord with the foregoing proviso.

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VARIETIES.

MR. JOSEPH HOLMES, builder, of Farnhill, Harrogate, Yorks., left £44,845.

NEWS has been received that Mr. William Arthur Rigg, Associate of the Royal Institute of British Architects, eldest son of Mr. and Mrs. W. Rigg, Oxford House, Carnforth, has been killed in action in France, he having been previously reported missing from April 19. Deceased was thirty-two years of age, and joined the Middlesex Regiment in July 1916. He married two years ago the elder daughter of Mr. and Mrs. James Dugdale of Thwaite Gate, Carnforth. He had practised in London and in Bolton.

SECOND-LIEUTENANT JOHN TAYLOR, Royal Engineers, of the Cottage, Dalton, Burton, near Carnforth, has died of wounds received in action. Deceased was the youngest son of Mr. and Mrs. Richard Taylor, of Manchester House, Holme, and thirty-one years of age. He was educated at the Friends' School, Lancaster, and after serving his articles as an architect with Mr. Hutton, of Kendal, accepted a Colonial appointment. Deceased was a well-known athlete, cricketer, and footballer.

ON Friday last the Bishop of Jarrow unveiled and dedicated two memorial windows at St. John's Church, Gateshead Fell. Both windows are personal gifts of parishioners. The first is in memory of deceased parents, and is the work of Messrs. Burlison & Grylls, of London. The second is the work of Mr. William Connell, of Low Fell, and is in memory of men from the parish who have fallen in the war.

AT a meeting of the Greasborough Urban Council, when the report of a sub-committee was considered, having reference to a scheme for increasing the housing accommodation in the district, Lord Fitzwilliam's New Stubbin Colliery, the Coke Ovens and By-Product Works, having necessitated more houses, it appeared that quite a number of sites were considered suitable for building upon, and it was agreed that the sub-committee should approach Mr. Talbot, agent to Earl Fitzwilliam, to ascertain what land was available and the terms and conditions. When this has been done it is proposed to have a plan prepared and to advertise the sites.

AT the Manchester Consistory Court last week Chancellor P. Vernon Smith granted a number of citations relative to the placing of memorials to soldiers killed in the war in churches in the diocese. At St. Matthew's, Crumpsall, stained-glass windows are to be put in, and at St. Gabriel's, Middleton Junction, a brass cross is to be placed in the sanctuary, to the memory of the fallen. In memory of soldiers and sailors belonging to the parish of St. James's, Bolton, the south-east transept of the church is to be converted into a side chapel, with a memorial communion table. In memory of Alfred Boardman, killed on the Somme on July 1, 1916, a carved oak reredos is to be placed in the church of St. John the Evangelist, Cheetham, and a brass tablet is to be put up in the church of St. Catherine, Barton-on-Irwell, to the memory of Adam Cordwell.

IT is officially announced that as the problems connected with the supply of timber have now only an indirect connection with the War Office, the War Cabinet have decided to transfer the Timber Supply Department from the War Office to the Board of Trade. A separate Department of the Board of Trade has been established for the control of all timber, and Mr. James B. Ball, M.Inst.C.E., engineer-in-chief, London, Brighton and South Coast Railway, whose services have been placed at the disposal of the Government by the company, has been appointed by the Board to take charge of the Department with the title of Controller of Timber Supply. All communications should be addressed to—Timber Supply Department, Caxton House, Tothill Street, Westminster. Control of timber supplies in France will remain with the War Office, as at present, under Brigadier-General Lord Lovat.

"THE Surrey Advertiser" thus discusses the difficulties in the way of accepting the fine organ so generously offered to Guildford by Mr. E. G. Meers. The proposal that an arrangement might be made to instal it at the County and Borough Hall presents difficulties which, we fear, must be regarded as insuperable, and as the suggestion of acquiring Allen House has by general consent been ruled out, it would seem that the only question is whether provision can be made for it in the scheme for municipal buildings at Tunsgate. In considering this matter we are sure the Council will not take a too rigidly economical view of the proposal. We know all the members want to accept the gift, and we do not believe they or the ratepayers will object to any reasonable additional outlay at Tunsgate which would permit of the provision of a hall capable of accommodating the instrument, and serving other public needs. The long view is better than the short view in national and municipal affairs, and the time may not be so far distant when the Council may feel it desirable to vacate their present Chamber in the Guildhall in order that it may be put to another use.

AT a meeting of the North-Eastern Centre of the Sanitary Inspectors' Association held on Saturday last at the Y.M.C.A., Leeds, Mr. T. Foley Cass, of Hull, gave an address on the housing question, which, he reminded them, had not yet been solved. It was estimated that there was a sacrifice of 250,000 lives a year from the tolerance of a continuation of housing conditions which ought to have been swept away. Criticising a recent saying of Dr. Angus, medical officer of health for Leeds, that dirty and destructive tenants should be segregated, he urged that what was wanted was human sympathy. He did not think Parliament would sanction any proposal of the kind. Much of the so-called destruction was merely wear and tear, especially in old houses. With regard to the dirty tenant he was of opinion that much more could be done than was done by the local authorities and their officers. This was not a case in which the owner could be held to blame. The disappearance of slums would be a very slow process, as long as the sentiment that the buildings of bygone generations could not, and should not be done away with persisted. Courage and not hesitation should be the keynote of our housing policy. To scrap insanitary houses was the only wise thing to do. The Government and local authorities should take this matter in hand seriously. Private enterprise had ignominiously failed to provide healthy housing accommodation for the people. He had little faith that any alteration of existing laws would enable private enterprise to do what was required. Neither had he any faith in glorified building societies.

AT a sitting of the Consistory Court of the Diocese of Liverpool faculties were granted in respect of the following applications:—To the vicar and wardens of St. Mary, Edgehill, to provide and fix a new low-pressure hot-water heating apparatus, the cost to be defrayed by voluntary contributions. To the vicar and wardens of Christ Church, Everton, to make certain alterations so as to form a space for a baptistry, and to erect a new font of stone with an oaken cover. To the vicar and wardens of St. Matthew, Highfield, to place in the east window stained glass representing "The Ascension," with subsidiary subjects, "The Resurrection" and "The Appearance to St. Mary" and "The Scene at Emmaus"; to erect a new reredos of Hollington stone, with marble panels, containing carved figures of St. Matthew and St. John; to affix tablets of stone, marble, or oak on the north wall of the chancel, with memorial inscriptions thereon; to place in windows in the chancel stained glass representing "The Presentation" and "The Visitation"; and to affix tablets underneath the proposed stained-glass windows with memorial inscriptions. The proposed stained glass east window, reredos, and tablets in the chancel are intended as a memorial of Colonel Henry Blundell Hollinshead Blundell, the donor of the church. The other stained-glass windows are to be erected in memory of the Rev. John Wood, M.A., deceased, curate-in-charge of St. Matthew's Church from 1881 to 1908, and of Gertrude D. Woods, deceased wife of the Rev. John Woods. To the incumbent and wardens of Maghull, to remove the bell now hung in the tower, and to erect in lieu thereof a chime of eight bells with the necessary fittings and apparatus for chiming the same, and to affix on the south wall of the baptistry a tablet of brass with an inscription recording the gift of the proposed new bells, the cost of which will be defrayed by Mr. John Pimbley, warden, who desires to give them to the church in memory of his parents. To the vicar and wardens of St. Mark, Pemberton, to remove the boards on which are inscribed the Creed, the Lord's Prayer, and the Ten Commandments to another position, and to carry out other improvements. To the vicar and wardens of St. George, Wigan, to erect a brass tablet to the memory of Frederick Seddon Brown, captain, 5th Battalion Manchester Regiment, who was killed in action at Cape Helles, Gallipoli, on May 26, 1915. To the vicar and wardens of St. Bartholomew, Liverpool, to erect new communion rails in memory of the Rev. John Howard, deceased, for twenty-two years vicar of the parish, and a tablet recording their erection; also to place a brass cross on the retable to commemorate those members of the congregation and parish who have fallen or who may fall in the present war, and to erect a brass tablet containing their names. To the vicar and wardens of St. James, West Derby, to erect a tablet of brass with an inscription in memory of William Jones, corporal, 11th (Pioneers) Battalion the King's (Liverpool Regiment), who gave his life for his country in the battle of the Somme (Delville Wood) on August 18, 1916. The cost of the memorial will be defrayed by his comrades in the battalion.

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THE
Architect and Contract Reporter.
FRIDAY, JUNE 8, 1917.

EDITORIAL NOTICES.

The Editor will always be pleased to examine drawings or articles with a view to publication, but cannot be responsible for the safety of those sent, though every reasonable care will be taken. Contributors desiring payment should clearly state their wishes. No payment will be made until after publication, and a commission to prepare articles or drawings does not necessarily imply acceptance or approval.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

We have upon our staff a very eminent Barrister, who will be glad to answer in the columns of this paper any legal question that may be of interest to our readers. All letters must be addressed "Legal Adviser," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

TENDERS, ETC.

*** *As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than* 2 P.M. *on Thursdays.*

CONTRACTS OPEN.

ALDBURY (HERTS).—June 18.—For painting, distempering, &c., at the isolation hospital at Aldbury, for the Aldbury Hospital Joint Committee. Mr. H. N. Hedges, surveyor to the committee, Tring.

BRISTOL.—June 16.—For plastering, &c., certain wards and painting, &c., nurses's accommodation at Eastville Institution, for the Guardians. Mr. J. J. Simpson, clerk, St. Peter's Hospital, Bristol.

CARDIFF.—June 12.—For painting and renovating the Clifton Street police station, Cardiff, for the Corporation. Mr. J. L. Wheatley, town clerk, City Hall, Cardiff.

DUBLIN.—June 11.—For fitting up new offices for the City Architect's Department in Lord Edward Street for the Estates and Finance Committee of the Corporation. Deposit £1. Mr. Edmund W. Eyre, City Treasurer, Municipal Buildings, Dublin.

HURDSFIELD (CHESHIRE).—For carrying out improvements at Trinity Schools, Church Street, Hurdsfield. Mr. J. Wright, architect, 27 King Edward Street, Macclesfield.

MANCHESTER.—June 11.—For the supply of karri or jarrah, and also creosoted beech, deal, or other wood-paving blocks, for the Manchester Corporation. Mr. Thomas Hudson, Town Clerk, Manchester.

NEWCASTLE-UPON-TYNE.—June 11.—For painting, &c., at the City Hospital for Infectious Diseases, Walker Gate, for the Sanitary Committee. Committee's Clerk's Office, Town Hall.

NEWPORT (MON.).—June 9.—For construction of Newport Light Railway, Section No. 2, for the Corporation. Deposit £3 3s. Mr. Albert A. Newman, Town Hall, Newport, Mon.

OAKWORTH (YORKS).—June 20.—For pulling down and rebuilding the boundary wall at the Oakworth Cemetery, for the Oakworth Urban District Council. Mr. A. Bradley, clerk, 96 Cavendish Street, Keighley.

OSWESTRY.—June 27.—For painting the following stations, for the Cambrian Railways Co.—viz.: Montgomery, Moat Lane, Bow Street, Llwyngwril, Arthog, Pensarn, Harlech, Portmadoc. Mr. G. C. McDonald, chief engineer, Cambrian Railways, Oswestry.

SUTTON (DUBLIN).—June 11.—For alterations and additions at Sutton Station, co. Dublin, for the Great Northern Railway Company (Ireland). Mr. T. Morrison, secretary, Amiens Street Station, Dublin. Deposit £1 1s.

TOTTINGTON (LANCS.).—June 13.—For building a short length of retaining wall at Lee Bridge, Bolton Road, for the Tottington Urban District Council. Mr. L. Kenyon, C.E., surveyor to the Council, Chapel Street, Tottington.

TROWBRIDGE.—June 30.—For carrying out works of alterations, additions, repairs, renovations, &c., at the following Council schools during the summer vacation, 1917, for the General Education Committee of the Wilts. County Council, in accordance with plans and specifications prepared by the county surveyor—viz.: Atworth, Bromham; Bremhill; East Tytherton; Brinkworth; Chippenham Ivy Lane; Chippenham Westmead mixed and infants'; Corsham Pickwick; Corsham Methuen; Corsham Neston; Corsham boys' and infants'; Downton; Donhead St. Mary; Donhead Ludwell; Edington and East Coulston, Great Cheverill; Highworth mixed and infants'; Idmiston; Luckington; Milton Lilbourne; Melksham Lowbourne infants'; Pewsey mixed and infants'; Purton; Rodbourne Cheney; Rodbourne Cheney Haydon; Ramsbury; Ramsbury Axford; Stratton St. Margaret; Upper and Lower Stratton boys' and girls' and infants'; Shalbourne Oxenwood; Trowbridge Newtown; Trowbridge Adcroft boys' and girls' and Margaret Stancomb; Wanborough; Wroughton girls' and infants'; Wootton Bassett; Westwood with Ilford and West Dean Council schools. Mr. J. G. Powell, county surveyor, Trowbridge.

TENDERS.

ASFORDBY (LEICS.).

For construction of a sewer, about 350 yards in length, in the parish of Asfordby, for the Melton Mowbray Rural District Council. Mr. G. F. FRYER, surveyor, Wyndham Avenue, Melton Mowbray.

A. E. Palmer	£1,062 18 0
A. E. Clarke	889 0 0
Denman & Newham	795 10 0
AMEY & Co., Aston	686 9 0

GUTHRAM (LINCS.).

For foundations of proposed new pumping plant at Guthram, for the North Fen Drainage Trustees.

T. H. HINSON, Bourne (*accepted*)	£310 0 0

STOKE-ON-TRENT.

For painting outside buildings at the hospital, for the Stoke Joint Hospital Board.

MOLLART (*accepted*)	£252 10 0

VENTNOR.

For painting pier, for the Urban District Council.

Exors. of A. SIMS (*accepted*)	£150 0 0

WAKEFIELD.

For putting in two new flues in connection with No. 2 Lancashire boiler, for the Guardians.

SPURR, INMAN & Co. (*accepted*)	£300 0 0

AT the annual general meeting of Chubb & Son's Lock and Safe Co., Ltd., held at 128 Queen Victoria Street, London, E.C., on June 6, it was proposed by Alderman Sir G. W. Truscott, Bart., seconded by Sir Henry Holloway, and unanimously resolved:—That the hearty congratulations of the shareholders be given to the chairman, Sir George Hayter Chubb, Bart., and all connected with the management of the business, upon its continued and increasing success, and upon its approaching centenary, the first Chubb lock having been patented February 3, 1818.

THE annual meeting of the Grand Antiquity Society of Glasgow was held on June 1 in the Vestry of the Cathedral. Mr. Ninian Macwhannell presided at the opening of the meeting, and later Dr. William Gemmell, who was elected preses for the current year, took his place. It was intimated that twenty-nine members had been added to the roll during the year, and that the financial statement was satisfactory. The retiring preses mentioned that the Master Court had presented seats for the use of disabled soldiers at Erskine House, and that they would be formally gifted to the institution in a few weeks. Mr. William B. Cowan was elected treasurer, and the following were appointed directors:—Messrs. David Sclanders, Robert Murray, David Perry, Archibald Speirs, Arthur Wilson, W. W. Mason, and George H. Laird.

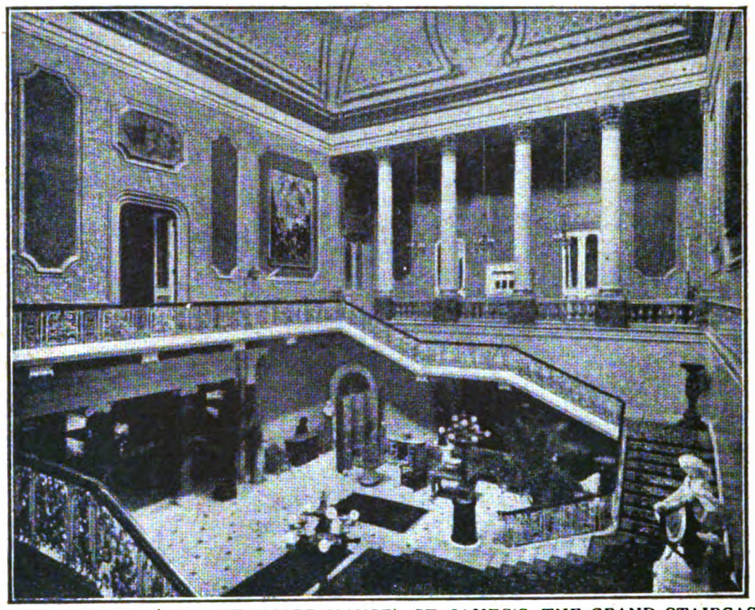
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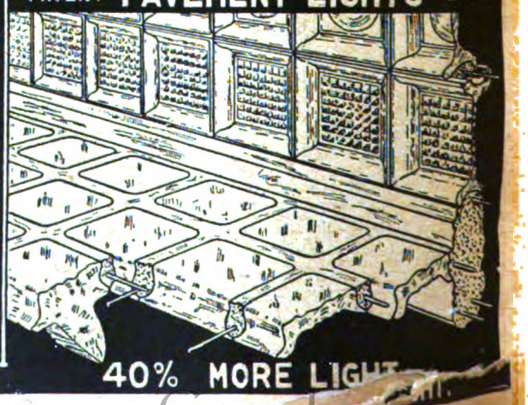
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THE LATE MR. H. M. TOWNSEND.

THE following obituary notice of the late Mr. H. M. Townsend, a well-known architect in Peterborough, appears in the "Peterborough Advertiser":—

Mr. Townsend was a son of the late Rev. Thomas Jackson Milnes-Townsend, Vicar of Searby, Lincolnshire. He was articled at Oxford, and then went to London in the office of Sir Gilbert Scott, being associated with many men who afterwards became famous architects. He was also for a short time with Mr. Butterfield, also a well-known name in those days. Later Mr. Townsend went into partnership with Mr. Mumford, an engineer at Wisbech, and whilst there a branch office was opened at Peterborough 40 or 50 years ago, on the Market Hill, the offices being for a time over the former premises occupied by Messrs. A. Beeby & Son, and then over Mr. Burlingham's premises near the Cathedral Gateway, now occupied by the Capital and Counties Bank. After the death of Mr. Mumford, Mr. Townsend continued in business for himself until 1898, when he took Mr. R. A. Fordham, who had been with him since 1884, into partnership. That partnership continued until May of last year, and was dissolved entirely owing to the conditions produced by the war. Since then and until he underwent an operation in Peterborough Infirmary, Mr. Townsend had been engaged in the munition department of Messrs. Barford & Perkins' works, in Queen Street. In the course of his long career Mr. Townsend was successfully associated with the restoration of several churches in the neighbourhood, and the erection of several buildings in Peterborough. Up to a year ago he had held the appointment of Diocesan Architect for nearly 40 years. In that capacity he was identified with the restoration of, amongst other churches, those of Orton Longueville, St. Mark's, and St. Mary's (Peterborough), Eye, Barrowden, Wakerley, Castor, Higham Ferrers, Alwalton, and Folksworth. The stained glass windows in Peterborough parish church to the memory of the late Dr. Thomas and Mrs. Walker, and the late Mrs. T. J. Walker, were also to his design.

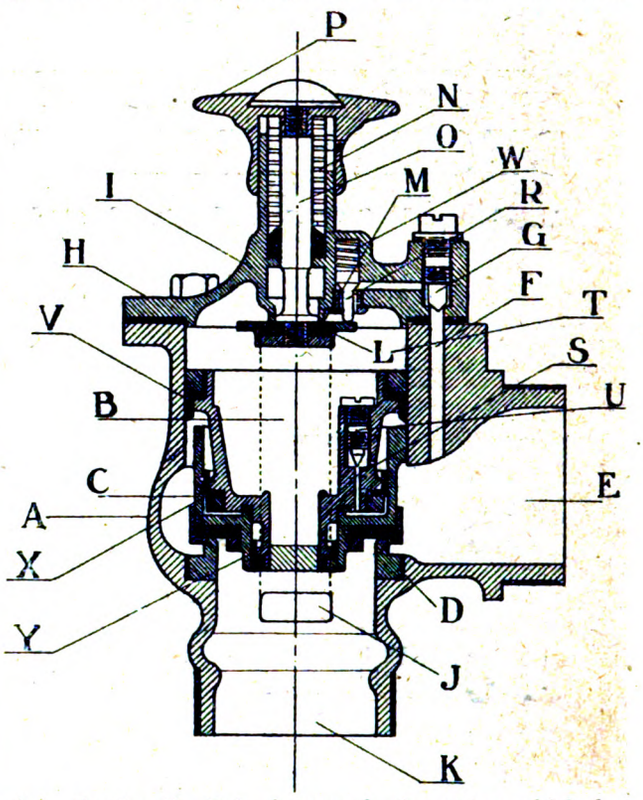
In his younger days Mr. Townsend was one of the first members of the Northamptonshire Volunteers, and enlisting as a private, retired with the rank of Captain over 30 years ago. His favourite pursuits were bee-keeping and horticulture, to which he devoted his spare time in the peaceful old-world surroundings of his residence at Orton Longueville, where he lived for nearly a quarter of a century. A man of culture and refinement, he was the beau-ideal of an English gentleman, the friend of all and the enemy of none, and leaves behind not only many monuments to his architectural skill, but the treasured remembrance of a name that stood for all that was treasured in an English gentleman.

BRITISH PATENT SPECIFICATION.

Selected by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the completed specification.

No. 105,609 (5,720, April 19, 1916).—Flushing Valves for Closets and the like. H. L. Doulton, of the Lambeth Sanitary Engineering Works, Lambeth, Surrey, Potter, and George Walker, 19 McKerrell Street, Paisley, Renfrew.—This invention refers particularly to valves suitable for the supply of water to closets, and the object is to ensure that a given quantity of water shall pass for flushing the pan, upon the movement of a handle, whether such handle be held or released at once. In this invention the upper piston is constructed and arranged with a much larger area exposed to the water-pressure on the upper side than on the lower, thereby ensuring the return of the upper piston to the initial position as required within the desired period. The arrangement consists of the valve body A, in which work two pistons B and C. The lower piston C, by resting on the prepared seating D around the outlet K, forms the valve. This piston C fits the valve body A loosely, but the upper piston B is provided with three cup leathers V, X, Y, two cup leathers X and Y fitting within the lower piston C, and the third, V, fitting the inside circumference of the valve body A. The water inlet is at E, and has communication with the top portion of the valve body A by means of a port F, governed by a regulating screw G. The valve body A is closed at the top by a cap or cover H. A separate way or passage J is constructed from the higher part of the valve body A to the outlet K. The passage J is closed by a disc L inside the valve body A, and held to a seating M by means of a spring N around a spindle O. Spindle O is connected to the disc L at one end; the other end extends upward and terminates with a handle or knob P. The disc L is of sufficient diameter to allow of its holding up, when at rest, a tapered pin R, also controlling the port F. A port S in piston B allows connection between the under side of piston B and the space beneath the top cup leather of same. In action,



when the handle P is depressed, the water which has accumulated in the part T of the valve body A is released and flows through the small valve at M to the outlet K by passage J, and the water pressure at the inlet, acting upon the under side of the lower piston C, forces that up, carrying with it also the second piston B, with the result that water flows to the closet. It will be noticed that water eventually finds its way through the port S in the piston B, the rate of flow depending upon a regulating screw U, and by the accumulation of water the lower piston C is forced on to its seat D again. On the handle P being released, the small valve at M is again closed, and water gathers in the upper part of the valve body through the port F, which is then opened by the rising also of the tapered pin R. Should the handle P be released after the valve is opened, and again immediately pressed down, the action is in no way affected, as an interval must be allowed for the pressure to force the top piston B back into the original position. In the case of the handle P being held down, the tapered pin R stops any flow through the port F by dropping on to a seat and being kept there by means of a spring W.—May 2, 1917.

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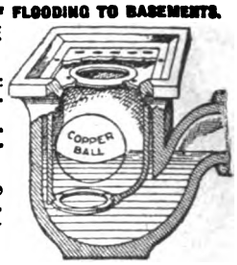
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PATENT SPECIFICATIONS.

Selected by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

No. 100,883 (April 4, 1916, dated under International Convention July 10, 1915).—F. C. Farge, 1 rue de Balzac, Nice. Apparatus for automatically igniting and extinguishing electric lamps.

105,936 (Feb. 28, 1916).—Landers, Frary & Clark, New Britain, Hartford, Conn., U.S.A. Electric heaters.

105,939 (March 31, 1916).—John Turner, 40 Taylor Street, Moonee Ponds, near Melbourne, Australia. Sanitary closets combined with means for the disposal of the night soil.

105,943 (April 3, 1916).—James Blake, "Leconfield," Abbey Road, Darlington. Fastening device for use with doors and the like.

105,962 (May 2, 1916).—Titanium Alloy Manufacturing Co., 15 Wall Street, New York, U.S.A. Manufacture of paints and pigments.

105,981 (May 5, 1916).—A. E. Partridge, 3 The Parade, Sudbury, Middlesex. Gas stoves.

105,984 (May 5, 1916).—Joseph Winterflood, 22 Alexandra Road, Finsbury Park, N., geyser manufacturer. Construction of combined gas and water valve for geysers and water heaters.

105,985 (May 5, 1916).—Isidore Chapman, 72 Baker Street, W. Portable or sectional building and the like.

105,992 (May 11, 1916).—Edward White, 88 Cromwell Road, Grays, Essex. Machines for pitching and driving piles.

106,011 (June 15, 1916).—The Cables Accessories Co., Ltd., and F. H. Reeves, Britannia Works, Tividale, Tipton, Staffs. Electric heaters.

106,015 (June 24, 1916).—J. M. Ruttur, Farnham Road, Guildford, Surrey, builder and sanitary engineer. Combination or assemblage of domestic heating, cooking, boiling, and washing devices.

106,022 (July 5, 1916).—C. B. Trescott, 607 Postal Telegraph Building, Chicago, Ill., U.S.A. Cooking apparatus.

106,030 (July 22, 1916).—C. H. Freeman, 42 Lower Villiers Street, Wolverhampton, Staffs. Non-slipping flooring, steps, stairs, or the like.

106,031 (July 27, 1916).—J. W. Moulding, 101 Stanmore Road, Mount Florida, Glasgow. Carpenters' and like hand braces.

106,034 (Aug. 16, 1916).—Edward Cooper, 1 Holly Hill, Hampstead. Plate draining racks.

106,048 (Oct. 18, 1916).—T. G. Dick and J. F. McCue, Duncrue Street, Belfast. Boxes, cabinets, and shop and ships' fittings.

106,060 (Dec. 5, 1916).—A. E. Hornby, 40 Kinmel Street, Rhyl, N. Wales. Flushing apparatus for water-closets and the like.

106,069 (Jan. 15, 1917).—W. J. Gregory, glazier, 72 North Birkbeck Road, Leytonstone. Lead glazing.

9,870 (July 7, 1915).—G. W. Naylor and J. F. Naylor, Denby Dale, near Huddersfield. Tanks for the purification of sewage. Amended specification.

105,738 (May 15, 1916).—John Shanks, Tubal Works, Barrhead, Renfrewshire. Baths.

105,693 (Aug. 14, 1916).—C. R. W. Swinden and C. G. H. Swinden, 18-20 Queen Victoria Street, E.C. Device for preventing ladders or the like from slipping or skidding when in use.

105,440 (May 17, 1916).—J. R. Clay, 1 Worcester Road, Bootle, Lancs. Locking electric lamps in their holders.

105,201 (Oct. 9, 1916).—Joseph Welsh, Golden Cross Hotel, 452 Strand, W.C. Locks.

105,008 (July 25, 1916).—W. A. Laming, 343 Matthenesserlaan, Rotterdam. Construction of buildings.

105,036 (Oct. 14, 1916).—A. A. J. Deckers, 45 rue de la Tour, Paris. Tubular framing for iron buildings, sheds, and the like.

105,022 (Aug. 24, 1916).—A. M. Wilmot and S. M. Wilmot & Co., Ltd., Galvanised Ironworks, Albert Road, Saint Philips, Bristol. Incinerator or destructor for burning waste material, garden, and other refuse.

105,025 (Aug. 29, 1916).—G. N. Crellin, 450 Birch Road, Wardle, Rochdale. Combination tools.

105,041 (Nov. 9, 1916).—Donald Gay, Newport News, Warwick, Penn., U.S.A. Fitting-up bolt.

105,070 (Mar. 20, 1917, dated under International Convention, Mar. 20, 1916).—Gaston Menier, 56 rue de Chateaudun, Paris. Automatic lubricating device for locks and bolts.

105,790 (April 25, 1916).—D. M. Nesbit, Ashwell Lodge, Barkby Lane, Leicester, and D. G. Snodgrass, "Kilcrenan," Streetly, Birmingham. Apparatus for the heating and / or ventilating of buildings.

105,809 (May 11, 1916).—J. S. A. Primrose, 199 Bath Street, Glasgow. Electrical radiators.

105,821 (May 31, 1916).—H. W. Gould, 43 Herbert Gardens, Harlesden, N.W., Heating Engineer. Heating and circulating water.

105,881 (Jan. 4, 1917).—C. P. Durand, Modane, Savoy, France. Chimney tops.

105,894 (Mar. 24, 1917).—George Anderson and The Leyland and Birmingham Rubber Co., Ltd., Leyland, near Preston. Rubber paving for roads and other surfaces.

105,847 (Aug. 4, 1916).—John Slater, 99 Corporation Street, Stoke-on-Trent. Window holders for sliding sashes.

105,858 (Sept. 20, 1916).—P. G. Donald, 225 Upper Thames Street, E.C. Device for laying and supporting pipes.

105,870 (Nov. 4, 1916).—Edgar Rhodes, The Briars, Scholes, near Leeds, and F. E. Bristowe, 11 Tothill Street, Westminster, S.W., Road Contractor. Mixing machines (used in the preparation of tar, macadam, asphalte, concrete, and the like).

Any of the above specifications may be obtained from J. D. Roots.

MR. JAMES BRAZIER, builder and contractor, Ferndene, Boroughbridge Road, Knaresborough, aged seventy-three, died on May 24.

A CONFERENCE was recently held in Edinburgh in connection with the question of providing housing accommodation for the workmen at Rosyth and other places included in the Admiralty schemes on the Forth. The Town Council propose to offer to the Admiralty at a moderate rate for feuing two tracts of ground at Gorgie and at Balgreen, the former extending to about 75 acres and the latter to 20. Plans and various forms of houses—tenement, semi-villa, and villa—were shown, and it was pointed out that the ground lay convenient to railway stations, to schools, and to the large public park at Saughton. The Admiralty are expected to build the houses. In the meantime the scheme is to be placed before the Admiralty.

As a tribute to the late Mr. Charles Hadfield's long and untiring service to the Catholic poor of Sheffield, rendered in his capacity as President of the Sheffield Council of the Society of St. Vincent de Paul, the Conferences of St. Marie's, St. Vincent's, and St. Catherine's have erected a fitting memorial in St. Marie's Church. The memorial takes the form of a mosaic representing St. Anthony of Padua, and its appropriateness will be recognised by none more readily than by the hundreds of Sheffield poor who have through many a winter had empty plates filled as a result of the world-wide St. Vincent de Paul Institution, inaugurated in Sheffield by the late Mr. Hadfield, known as "St. Anthony's Bread." The mosaic is worked in a selection of colours which, along with a surrounding frame and inscription tablet, combine to form a design marked by fine proportions and colour harmony entirely in keeping with the surroundings. A special interest of association attaches to the mosaic. It has been executed in Italy from a design made by the veteran artist, Mr. N. H. J. Westlake, who, in spite of his eighty-six years, is still able to practice his art with remarkable vigour, and whose intimate friendship with the late Mr. Hadfield dates back to their student days. The alabaster frame is from a design by Mr. C. M. Hadfield, and the execution of it has been skilfully carried out by Mr. Frank Tory, of Sheffield.

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VARIETIES.

THE Aberdare U.D.C. have adopted a housing scheme for Abernant estimated to cost £5,000.

AXMINSTER Urban Council has decided to submit proposals to the Local Government Board for the construction of additional works for water supply.

TORONTO building permits for the first three months of this year will be three times greater in value than those of the corresponding period last year.

THE will of the late Mr. George Hodges, of Clay Street, Stapenhill, Derby, builder and contractor, has been proved at £25,753. Net personalty, £12,297.

GEORGE ANDREW HOBSON, M.I.C.E., of Coverdale Lodge, King's Road, Richmond, Surrey, partner in the firm of Sir Douglas Fox & Partners, Ltd., left £58.825. Net personalty, £56,497.

IN the list of honours conferred on His Majesty's birthday we notice the name of Mr. Robert Murray Hyslop, who receives the honour of knighthood. Sir Robert is the managing director of the well-known firm of Bayliss, Jones & Bayliss, Monmore Green, Wolverhampton.

THE Housing Committee of the Corporation of Dublin have received notification from the L.G.B. of their sanction to a loan of over £26,000 for the purpose of erecting seventy-five working-class houses on the Spitalfield's area. The Committee at once decided to apply for a grant to enable them to proceed with the scheme.

THE Rome City Council has voted unanimously the demolition of the Caffarelli Palace, formerly the home of the German Embassy, with the object of isolating the forums and the Capitol, thus forming a whole area occupied only by ancient monuments.

MR. C. W. BEST, County Surveyor for Breconshire, has now lost a third son in action, Lieutenant Stephen W. Best having been killed in Mesopotamia. Lieutenant Frank Best, South Wales Borderers, and Lieutenant Arthur M. Best, Royal Engineers, were killed last year in the same field of operations.

A MEMBER of our staff, writing to us from the Front, states that "no pen can depict the awful desolation out here, gazing at the ruins of ——, somewhere in France. The thought was in my mind at once, what a rush of work for architect, builder, and contractor for supplies immediately war is over; will our people rise to this or shall we see the German, who destroyed it, providing the means to restore it?"

AT the annual meeting of the Hastings Pier Company, Alderman Weston, in moving the adoption of the report and balance sheet, said the authorities had felt disposed to stop the alterations on the shore end of the pier. However, the contractors and architect persuaded the officials in London to allow the work to be carried on, as they had all their iron and steel ready for fixing and the men were not thought to be required for military services.

WITH a view to removing misconceptions which have recently arisen in various parts of the country, the Minister of Munitions directs attention to the fact (1) that no building or construction work costing over £500, or involving the use of constructional steel, can be undertaken without a licence from the Ministry, and (2) that such licence is as necessary for work involved in the restoration of property destroyed or damaged by fire or aircraft as for work undertaken in other circumstances.

FOR some time past Mr. P. Cole, the headmaster of the Hastings School of Art, has been on military service. Now another gifted Sussex artist and successful teacher is about to join the Colours. Mr. A. Reeve Fowkes, A.R.C.A., the esteemed principal of the Eastbourne Municipal School of Art, has had his call, and has entered the Inns of Court Officers' Training Corps, and the pupils as well as members of the Education Committee greatly regret his departure.

THE death occurred last week of Mr. William Harpur, for many years city engineer of Cardiff. In his profession he was widely known as an expert in the laying out of new districts on modern lines, in which work the extraordinarily rapid growth of the metropolis of South Wales has afforded him ample scope. He was the sixth son of the late Mr. Samuel Harpur, who from 1841 to 1851 was borough surveyor of Derby, and his uncle was the late Alderman John Harpur.

THERE is on view at the Stephen Adam Studios, 140 Bath Street, Glasgow, a fine stained-glass window in memory of Mrs. Elizabeth Mitchell and her two daughters, which is to be erected in Rothesay Parish Church (the Rev. Dr. King Hewison). The subject is worked out from the text "All hail; be not afraid," depicting the women meeting the risen Christ on the roadway and falling on their knees before Him. The window is carried out in rich harmonious colourings on a white background, surrounded by the emblems of the Passion. There is also on view part of a war memorial in memory of a young lieutenant, who fell at the battle of the Somme, to be erected in the U.F. Church, Bearsden.

LAST Saturday witnessed the biggest fire of the year in London, a large manufactory and timber yard in Hertford Road, Kingsland, N., occupied by Messrs. J. King & Co., Ltd., packing-case makers, being involved. The workshops, covering an area of 200 feet by 100 feet, were nearly burned out, and huge stacks of timber caught fire, this proving the most serious problem for the firemen. Several explosions were caused by gas engines, and a large crane collapsed. Some fire damage was caused to the premises of Messrs. G. F. Wood & Sons, Ltd., whiting manufacturers, and to the yard of the Shoreditch Borough Council. The damage is unofficially estimated at £40,000.

THE death of Mr. Julian C. Rogers, who was for thirty-six years secretary of the Surveyors' Institution, from which post he retired in 1905, took place on Whit Sunday, at the age of seventy-seven years. Mr. Rogers was born at Farnham, Surrey, and educated at Winchester and Oxford. After experience with an engineering surveyor and in the office of the late Mr. Edward Ryde, Mr. Rogers entered on his duties as secretary with energy, revising 5,000 volumes in the library and editing the "Transactions" and "Professional Notes" with credit and ability. The professional examinations were perhaps his chief study, though he was a great factor in the successful establishment of the Provincial Committees.

A SOMEWHAT serious situation has arisen in regard to the Derwent Valley water supply, inasmuch as the Water Committees of Derby and Nottingham Corporations have been informed that a notice has been received from the city of Sheffield by the Derwent Valley Water Board to construct works sufficient to provide the total remaining quantity of water to which they are still entitled. The Nottingham Committee have had a full report upon the matter from their water engineer, and they propose to reply that the Corporation cannot spare any of the remaining water to which they are entitled from the Derwent Valley Waterworks, and that the further instalment to which they are entitled should be provided within the next ten years, and that the Board be therefore furnished with particulars as soon as possible of the quantity required, and at what date the Corporation will require that supply.

CAPTAIN AND ADJUTANT A. T. R. HAMILTON (killed in action while leading his men) was the youngest son of the late Mr. Robert Hamilton and of Mrs. Hamilton, Trinity Lodge, Edinburgh. Captain Hamilton was an architect by profession, and was formerly in the City Architect's office at Edinburgh. Later he joined the Public Works Department in Pretoria. He was through the South African War, served in the Natal Light Horse during the rebellion, and re-enlisted for the fighting in South-West Africa, in which campaign he was taken prisoner, and in an hour and a half was released by the capture of the German force. At the conclusion of the campaign, Captain Hamilton came home, and received a commission in the Border Regiment. For fifteen months he was attached to training camps in England, but it was his desire to go to the Front, and he went there just before Easter as Lieutenant in a battalion of the Border Regiment.

ARRANGEMENTS have been completed by which the property known as Quebec House, Westerham, the house which was the home of Wolfe during his childhood, has been vested in the National Trust. It was purchased in 1913 by the late Mr. J. B. Learmont, of Montreal, with the intention that it should be kept as a public monument and be accessible to the public. Mr. Learmont died before his plans could be completed, and in his will, made before the purchase of the property, there was no provision for the carrying out of his intention, but his family were anxious to put into effect Mr. Learmont's wishes. The executors obtained in 1915, by an Act of Parliament of the Province of Quebec, special authority to convey the property to the Dominion of Canada for administration by such trustees as might be approved by the Governor-General. Owing to difficulty of administering a trust so distant, the Dominion Government preferred that the property should be vested in an English body, and, through the agency of the Charity Commissioners, it passes to the National Trust. Provision has been made for the endowment of the property with a sum which will provide for its upkeep, and probably for the addition from time to time of objects of interest to the Canadian Collection already existing.

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THE
Architect and Contract Reporter.
FRIDAY, JUNE 15, 1917.

EDITORIAL NOTICES.

The Editor will always be pleased to examine drawings or articles with a view to publication, but cannot be responsible for the safety of those sent, though every reasonable care will be taken. Contributors desiring payment should clearly state their wishes. No payment will be made until after publication, and a commission to prepare articles or drawings does not necessarily imply acceptance or approval.

TENDERS, ETC.

**** As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.*

CONTRACTS OPEN.

ALDBURY (HERTS).—June 18.—For painting, distempering, &c., at the isolation hospital at Aldbury, for the Aldbury Hospital Joint Committee. Mr. H. N. Hedges, surveyor to the committee, Tring.

BANDON (IRELAND).—June 16.—For supply of materials for repairs to 400 cottages for the Bandon Rural District Council. Mr. A. Haynes, clerk.

BISHOP AUCKLAND.—June 20.—For painting outside woodwork and ironwork of administrative block and porter's house at infectious diseases hospital, Tindale Crescent, near Bishop Auckland. Mr. S. Adams, clerk, Union Offices, Bishop Auckland.

CHESHUNT.—June 26.—The Cheshunt Urban District Council invite tenders for the erection of a small-pox hospital, comprising ward block, administration block, and laundry and mortuary block. Mr. J. E. Sharpe, surveyor, Manor House, Cheshunt. Deposit £2 2s.

DARTFORD.—June 27.—For external painting and repairs, &c., at the Darenth Industrial Colony, Dartford, Kent, for the Metropolitan Asylums Board. Mr. D. Mann, clerk, Office of the Board, Embankment, E.C.

GREENOCK.—June 25.—For alterations and addition at Togo House, Dempster Street, for the Corporation. Town Clerk, Municipal Buildings.

GRIMSBY.—June 20.—For extensions to the isolation hospital (corrugated iron) at Immingham, and painting the roofs, sides and external woodwork of existing building and new block, for the Grimsby Rural District Council. Engineer and Surveyor's Office, Council Offices, Grimsby. Deposit £1.

LEEDS.—June 20.—For painting and cleaning schools during the midsummer vacation, for the Leeds Education Committee. Mr. J. Graham, secretary for education, Education Offices, Leeds.

OAKWORTH (YORKS).—June 20.—For pulling down and rebuilding the boundary wall at the Oakworth Cemetery, for the Oakworth Urban District Council. Mr. A. Bradley, clerk, 96 Cavendish Street, Keighley.

OSWESTRY.—June 27.—For painting the following stations, for the Cambrian Railways Co.—viz.: Montgomery, Moat Lane, Bow Street, Llwyngwril, Arthog, Pensarn, Harlech, Portmadoc. Mr. G. C. McDonald, chief engineer, Cambrian Railways, Oswestry.

SALFORD.—June 25.—For the supply and erection of steam boiler housing, comprised of steel framework and corrugated sheeting. Borough electrical engineer, Frederick Road, Salford.

SHOEBURYNESS.—June 25.—For painting the two gasholders at the gasworks, the Council supplying all paint to be used, for the Shoeburyness Urban District Council. Mr. F. J. Glasscock, Council Chambers, Shoeburyness.

TROWBRIDGE.—June 30.—For carrying out works of alterations, additions, repairs, renovations, &c., at the following Council schools during the summer vacation, 1917, for the General Education Committee of the Wilts. County Council, in accordance with plans and specifications prepared by the county surveyor—viz.: Atworth, Bromham; Bremhill; East Tytherton; Brinkworth; Chippenham Ivy Lane; Chippenham Westmead mixed and infants'; Corsham Pickwick; Corsham Methuen; Corsham Neston; Corsham boys' and infants'; Downton; Donhead St. Mary; Donhead Ludwell; Edington and East Coulston, Great Cheverill; Highworth mixed and infants'; Idmiston; Luckington; Milton Lilbourne; Melksham Lowbourne infants'; Pewsey mixed and infants'; Purton; Rodbourne Cheney; Rodbourne Cheney Haydon; Ramsbury; Ramsbury Axford; Stratton St. Margaret; Upper and Lower Stratton boys' and girls' and infants'; Shalbourne Oxenwood; Trowbridge Newtown; Trowbridge Adcroft boys' and girls' and Margaret Stancomb; Wanborough; Wroughton girls' and infants'; Wootton Bassett; Westwood with Ilford and West Dean Council schools. Mr. J. G. Powell, county surveyor, Trowbridge.

UXBRIDGE.—June 19.—For exterior painting and repairs at the union workhouse, Hillingdon East, for the Guardians of Uxbridge Union. Mr. C. Woodbridge, clerk, 38 High Street, Uxbridge.

WIGAN.—June 19.—For converting the stables at the central car shed into a motor tower wagon garage, for the Corporation. Mr. A. T. Gooseman, borough engineer, King Street West.

TENDERS.

BEDFORD.

For supply of three motor-driven general service pumps, for the Town Council.

POOLEY & AUSTIN, 25 Victoria Street, London, S.W. (*recommended*)	£136 0 0

BIRMINGHAM.

For supply of electrical plant, for the Corporation.

Accepted tenders.

VAUGHAN CRANE Co., electrical hoist ...	£3,095 0 0
BRITISH THOMSON-HOUSTON Co., LTD., turbo-exhauster	1,696 0 0

CHELMSFORD.

For provision of sanitary accommodation at the public baths in Waterloo Lane, Chelmsford, for the Town Council.

H. POTTER, Chelmsford (*accepted*)	£103 0 0

DUDLEY.

For extension of heating system at the town hall, for the Corporation.

JONES & ATTWOOD, Stourbridge (*accepted*)	£240 0 0

IRELAND.

For the erection of seventy-five two-storey cottages, each containing three apartments as well as the usual outoffices, and a playground, for the Housing Committee of the Dublin Corporation. Mr. Charles J. McCarthy, F.R.I.A.I., city architect.

T. McMillen, Dublin	£27,600 0 0
Municipal Workshop, Stanley Street ...	27,471 5 11
J. & W. Stewart, Dublin	26,997 4 8
Farmer Bros., Dublin	25,619 0 0
H. & J. Martin, Ltd., Dublin	24,182 0 0
William Doyle, Dublin	24,153 0 0
T. Mackey & Sons, Dublin	24,085 0 0
Alex. Hull & Co., Dublin	23,995 0 0
Alex. Fraser & Co., Dublin	23,700 0 0
Louis Monks, Kingstown	23,090 5 4
Thomas O'Mahony, Fermoy	22,982 0 0
J. & M. CLARKE, Upper Clanbrassil Street, Dublin (*recommended*) ...	22,918 0 0

NUNEATON.

For construction of foundations for boiler at the electricity works, for the Corporation.

G. Smith & Sons, Nuneaton	£240 0 0

SCOTLAND.

For painters' work in connection with alterations at Schipka Pass, for the Glasgow Corporation.

T. Lawrie & Co.	£123 8 9

SWANSEA.

For repairing playgrounds, for the Education Committee.

C. & F. Geen, Port Talbot	£133 15 0

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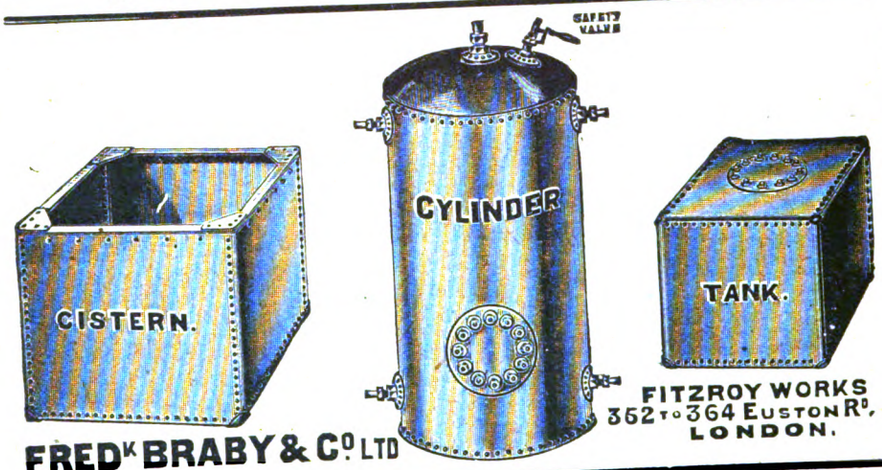
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PIECE WORK IN THE BUILDING TRADE.

THE advantages of artisans being paid for their labour on a basis of piece work are rapidly being more widely understood, and the system is now followed with complete success in many trades and industries. It benefits the employer by preventing waste of time, and is equally advantageous to the employee as it acts as an incentive to him to "speed up" as far as is compatible with good work. The man, therefore, who possesses talent as a quick worker gains a distinct advantage. He is not kept back by the slower workman, and his abilities find a fair market value. The difficulty of opposition by the Unions on the plea of protecting the slower workman can be overcome by paying the men in gangs of from six upward, the total work done by such gangs being allocated equally, or in any other way they may decide.

As already stated, the system is largely used in most industries, and there seems no doubt that it could be adopted with equal success in the building trade. As far as painters' work is concerned, it may be urged that the nature of the operations frequently will render piece work impracticable, but a closer examination of the subject will show that this is a false view to take. In drawing up an estimate of work, whether new or old, the master painter necessarily reduces every item to a unit, and by doing this, he affords at once complete opportunity of arranging to pay for the labour on such units. Even the most intricate work, other than the purely artistic, such as hand-painted ornament of an elaborate character, is reduced to so many superficial or lineal yards, or feet, and a proportion of the charge can be divided between labour and material.

Everything will, naturally, depend upon the prices fixed for the piece work, and here we may confidently look for guidance to other industries in which the system has proved successful. Before an estimate is drawn up, it would be necessary for the master painter to consult, say, two or three of the men appointed by their fellow workmen for the purpose, and to agree on the price of labour for every unit in the bill of quantities. One may suppose that the tendency would naturally be for the workmen to demand excessive prices, and for the masters to endeavour to get the very lowest, and so the pessimist might anticipate that a deadlock would ensue and the scheme prove a failure. In actual practice, however, it is found that with a little trouble, a fair arrangement can be arrived at, because it must be remembered—and this is the whole crux of the subject—that if the price is high, the tender will stand no chance of being accepted. If, as will sometimes inevitably happen, certain items are found to be a little lower than they might have been, both employer and employee will suffer a little on that particular job, and the experience will be useful to them on the next tender they put in.

The fact must be admitted that the most important objection which can be urged against the piece-work system is that it leads to scamping, unless the greatest care is taken to prevent it. The journeymen in their desire to increase their wages are likely to work so quickly that imperfect results ensue. But this objection is one which might be urged with equal force in connection with all industries in which the system is used. When the weak spot in a system is clearly foreseen it can be dealt with effectively. Probably the best plan so far as the building trade is concerned would be to make the foreman on each job the judge of the quality of the work, and to pay him a generous weekly wage for the increased responsibility involved.

It is generally admitted that a great upheaval will follow the Declaration of Peace, and we are convinced that the solution of the problems which will presently face the master painter and master builder will be found in the adoption of the piece-work system. It will require judicious handling in a spirit of "give and take"; it will bring the employer and employed closer together in their mutual interest; and it will without doubt eliminate to a very large extent waste of time and put the workman on his metal to produce the best that is in him.—"The Decorator."

LONDON ELECTRIC RAILWAYS.

COMPULSORY ACQUISITION OF WESTMINSTER PROPERTY.

ARBITRATORS having failed to agree, Mr. A. Virgoe Buckland, F.S.I., as umpire, sat at the Surveyors' Institution to hear a claim for compensation, payable by the London Electric Railways to the trustees of Mr. John Smith, in respect of certain property situate near Victoria Street, Westminster, on the exercise by the railway company of their compulsory powers. The property consists of Nos. 29 and 31 The Broadway, which is leasehold, and of freehold land in Maundy Place.

Mr. Eustace Hills was counsel for the claimants, while Mr. Szlumper appeared for the Electric Railways.

Mr. Hills said it was generally agreed that an owner who was obliged to sell was entitled to fair and full compensation. The property in this case was situated in a district which had been extensively developed. He submitted that it had to be considered in all its circumstances, and with all its potentialities, and that it was the key-plot to development in the part in question. It was extremely probable that, supposing the compulsory powers of the railway company had not intervened, his clients in the near future would have had an opportunity of selling this property as a portion required for development. Negotiations had crystallised at the beginning of 1916 into an offer of £6,000. That offer was refused, and then came the notice to treat from the Electric Railways.

Mr. J. H. Oakley, surveyor, of Charles Street, St. James's Square, S.W., giving evidence, said the Broadway property was held for a term of eighty years from March 25, 1871, under a lease from the Metropolitan District Railway Company. There would thus be 34½ years unexpired at Michaelmas next. The property had a ground rent of £27 per annum, and was sub-let to Mrs. Isobel Lindsaybyrne for 24 years from December 25, 1908, on a repairing lease, at a net rent of £180 per annum. Deducting the ground rent, there was left a profit rental for 17 years unexpired of £153, and on the 6 per cent. table (say 10½ years' purchase) he arrived at a value of £1,606. On the expiration of the sub-lease he valued the reversion for 18¼ years at a net rent of £350 per annum, and, deducting the ground rent, reached a profit rental for the remainder of the term of £323. He valued this on the 7 per cent. table—equal to 3.2 years' purchase—at £1,040, and thus his total value of the leasehold property was £2,646. He made an allowance for outlay required at the end of the existing lease to put the premises into repair, and to a certain extent to modernise them, to command the increased rent of £350. Discounted for 17 years at 6 per cent. he allowed £130, and thus estimated the net value of the leasehold property at £2,516. As regarded the freehold land in Maundy Place, it had a ground area which had been agreed at 1,940 feet. It was partially covered with old buildings, and was subject to a right-of-way to Maundy Place from a public-house. He valued the land at 30s. a foot, or £2,910, from which he deducted an allowance of £175 as half-value for a 6-foot easement area of about 235 feet, which left £2,735. There remained a total value of leasehold and freehold property of £5,251, to which he had added 10 per cent. for compulsory purchase, equal to £525, thus making a total compensation payable of £5,776.

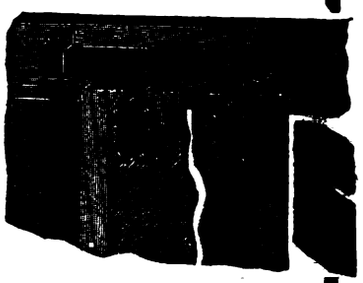
Mr. W. H. Mills, of Messrs. Trollope & Sons, of Victoria Street, S.W., said he should think there had been more development in this district than in any part of London. There was a great demand for offices, and his firm had been obliged to send people to the City because they had no accommodation. On his valuation he found that the compensation payable to claimants amounted to £5,661.

Mr. A. L. Ryde, surveyor, of Parliament Street, the

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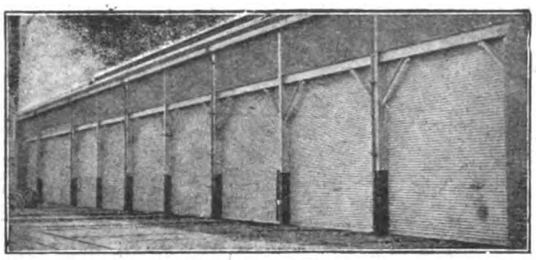
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arbitrator for the claimants, thought a fair compensation would be £5,682.

This was the case for the claimants, and Mr. Hills intimated that he thought the railway company had in fact purchased the sub-tenant's interest in the leasehold property.

Mr. Szlumper, in opening the case for the Electric Railways, urged that the property had disabilities and drawbacks in respect of frontage, lighting and easement, which must be borne in mind in valuation. The value arrived at must not be a fancy value because of some circumstances outside the value, but must be the proper market value. No one could say that the value of property in Westminster was going to be greater in twenty years time than it was to-day. No one could say what the war would produce. He suggested that after the war there would be a large number of offices to let.

Sir Alexander Stenning, surveyor, of Cannon Street, E.C., first gave evidence on behalf of the Electric Railways. He said he thought £180 a year was a good rental for the leasehold property, and, after deducting ground rent, he had taken the profit rental for the whole of the unexpired period of the original lease at £153, and on the 6 per cent. table (14½ years' purchase) arrived at a value of £2,218. He thought that was a fair way of dealing with it, and there was no speculation about it. The freehold property must be regarded as a piece of land. The buildings might go on for some time. What could be done with the land after the buildings were condemned he did not know. The land was irregularly shaped. The entrance to it was by a narrow place—Chapel Place—which was not a good approach, and then there was a right of way to a tavern. He thought they must take what the property was making to-day, though they might get something additional for it from an adjoining owner. Its present rental was £65 a year, and taking the net rental at £60, on the 6 per cent. table (16½ years' purchase) he arrived at a value of £990. He added 10 per cent. for compulsory purchase in respect of both properties, and found a total compensation payable of £3,528.

Mr. Hills: The upper part of the leasehold property was under-let at £259 at the date of the notice to treat, and the shops were in possession.

Sir Alexander Stenning: But you were only getting £180. In further cross-examination Sir Alexander said he thought the rental value might go up at the date of the termination.

Mr. Samuel Walker, surveyor, of Moorgate Street, E.C., arrived at a total of £3,635; and Mr. Leslie Vigers, of Frederick's Place, E.C., the arbitrator for the Electric Railways, was substantially in agreement with the figures of Sir Alexander Stenning and Mr. Walker.

The hearing of the claim was concluded, and the umpire will announce his decision in due course.

AT a meeting of the Tees Conservancy Commissioners last week sanction was given to the transfer of 21 acres of land at Portrack, Stockton, abutting on the river, to the East Coast Steel Corporation, which is a new company formed to erect blast-furnaces, steelworks, and an extensive shipyard on the site. The project is to be commenced, it is stated, this year, and will involve the expenditure of £3,000,000. A syndicate of northern ironmasters are the promoters of the undertaking.

AT Keresley Church, Warwickshire, for some time past the Churchwardens have been giving their attention to the very bad conditions of the floor on the north side of the church, which is caused by dry-rot. It was at first intended to have it temporarily repaired, but as this would not stop the mischief, and as there is a great risk of it spreading to all the woodwork in the church, it has been decided to have the north floor thoroughly renovated throughout, in such a way that the dry-rot will be effectively checked. The method chosen is to remove the whole of the floor on that side, and to lay down a bed of cement, and upon that a wood-block floor; also to cut out any parts of the oak seats that are affected and to replace with sound material. The work will be put in hand as soon as possible.

PATENT SPECIFICATIONS.

Selected by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

No. 105,923 (April 25, 1917, dated under International Convention April 28, 1916).—Armand Ducret, 16 rue Industrielle, Montreux, Switzerland. Improvements in concrete stairs.

101,031 (July 25, 1916, dated under International Convention July 26, 1915).—The Massachusetts Saw Works, Brightwood, Springfield, Mass., U.S.A. Improvements in saws.

106,115 (Nov. 20, 1916).—F. J. Tomalin, Ebenezer House, Kingsthorpe Road, Northampton. Improvements in machines for use in manufacture of ornamental mouldings.

106,125 (May 8, 1916).—H. B. Dewhurst, James Molyneux, and David Harris, Hecla Works, Bamber Bridge, Preston, Lancs. Improvements in or connected with tar spraying machines or boilers, and such like.

106,150 (May 19, 1916).—D. M. Fraser, Box 230, Toronto City, York, Ontario. Improvements in pipe fittings.

Any of the above specifications may be obtained from J. D. Roots.

NEW CATALOGUE.

A NEW list has been issued by the British Thomson-Houston Co. on "Eye-Rest" Indirect Lighting Fittings. This new list shows several new types of fittings of particular interest, and gives complete information on this excellent form of lighting. The "Eye-Rest" system of lighting was first introduced by the B.T.H. Co. in Great Britain some four years ago, and has now established itself as a most successful and popular form of lighting.

The advent of the half-watt type lamp has particularly emphasised the effectiveness and attractive quality of lighting with "Eye-Rest" equipment. Experience has shown that no system of lighting is more popular, and it continues to give unqualified satisfaction. It is remarkable to note the success of this form of lighting, and how it has steadily won its way against old ideas and conditions. Every user of "Eye-Rest" lighting becomes a strong friend and advocate of this form of lighting, and the system can verily be said to be advertised by its admiring friends. There is hardly any phase of lighting work for which the system has not been successfully employed—for theatres, cinemas, offices, Government buildings, schools, churches, auditoriums, hospitals, shops, large stores, co-operative stores, showrooms; in fact all classes of interiors.

The new list is of interest in showing the extent to which the "Eye-Rest" equipment is now adapted for use with half-watt type lamps, to which it lends itself most admirably. The success and efficiency of the system is, of course, largely due to the use of the well-known "X-ray" reflectors with their specialised construction and backing of special composition of pure silver and fireproof enamel. These reflectors have now been specially designed for use with half-watt type lamps.

The new list also contains complete details and illustrations of lighting installations, giving full illumination data and tables of values, thus permitting the ready solution of lighting problems with this form of lighting equipment. Special attention is drawn to the new "Eye-Rest" Portables employing the indirect lighting equipment with half-watt type lamps with floor and table standards, thus giving an equipment which is independent of a ceiling fitting and can be used in any part of the room or removed from room to room as conditions require. These Portables are admirably adapted for the lighting of English interiors because they give a local lighting effect as well as general illumination by indirect lighting. This list is being distributed to all holders of the B.T.H. Lamp and Wiring Supplies Handbook Binders, and copies can be obtained on application to the Lamp and Wiring Supplies Department, Mazda House, 77 Upper Thames Street, London, E.C. 4.

WE are asked to mention that a pit in one of the tramway sheds belonging to the London County Council, which hitherto allowed water to percolate after heavy rains has now been made watertight, and the engineer has expressed his appreciation. Pudloed cement was the waterproofing medium adopted for the work.

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VARIETIES.

A MEMORIAL window has been placed in St. John's Church, Pembroke Dock, by Dr. and Mrs. A. E. Saunders in memory of their son, Captain G. J. R. Saunders, Lancashire Regiment, killed in action.

As road stone is now controlled by the Government, local surveyors will be on "rations" in respect of supplies for road maintenance and repairs, and stone will only be allocated after the needs of the military have been satisfied.

MRS. HICKS TEMPEST, of Bradenham Manor, has offered £3,000 towards the enlargement of the High Wycombe and Earl of Beaconsfield Memorial Cottage Hospital, which is estimated to cost about £10,000.

THE death is announced, on June 6, at Sunningdale, Berks, of Mr. Richard Henry Weymouth, F.R.I.B.A., fourth son of the late Richard Francis Weymouth, D.Lit., late head master of Mill Hill School, N.W., aged fifty-two.

THE finished design of the late Miss Macnaughton's gift of a window to East St. John's Parish Church, Dundee, has now been submitted to the executors, and will be exhibited in the Sandeman Library this week. Mr. Douglas Strachan, Edinburgh, is the artist.

H.M. EMBASSY in Paris reports that an Order of the Minister of the Interior has established a Committee, to be known as the "Commission Consultative des Marches et des Stocks," to study the question of purchase of materials for reconstruction work in the invaded districts of France.

A BAPTISMAL font of alabaster with pillars of Connemara marble was dedicated on Sunday evening in Glenboig Church by the Rev. E. Sherwood Gunson, minister of the parish. The font was the gift of Mr. James Dunnachie, of Glenboig House, and was designed by Mr. Vicars, sculptor, Glasgow.

THE Camberley Urban District Council have received sixty applications for the position of surveyor to the Council, and of these three were selected and interviewed. Mr. H. Fox Hill, aged forty-eight, at present surveyor and inspector to the Ware Urban District Council, Hereford, has been appointed at a salary of £250 per annum.

CHADDESDEN Estate, Derby, which was inherited by Sir Ralph Wilmot, of Stubton Manor, Newark, upon the death of his uncle, the late Sir Henry Wilmot, Bart., is to be offered to the public as sites suitable for residential property and other purposes. The Hall, a large mansion of brick, with a fine Queen Anne front, was rebuilt about 200 years ago, and is situated in a beautifully wooded park.

THE Government authorities have decided to make Nottingham the centre for the East Midland counties in connection with the Lord Roberts' Memorial Workshops. A considerable sum towards the establishment is to be derived from the proceedings of the recent Patriotic Fair, which has already realised £27,000, and the ultimate total of which, it is hoped, will be £30,000.

A COMMITTEE has been formed under the chairmanship of Mr. E. S. Montagu, M.P., to establish a national memorial to the late Captain F. C. Selous, D.S.O. It has been decided to erect a bas-relief in the Natural History Museum, South Kensington, where many of the trophies of the great hunter's skill are exhibited, and it is hoped also to found a Selous Scholarship at his old school, Rugby, on the basis that preference will be given at each election to the sons of officers who have fallen in the war.

THE Port of London Authority have recently completed the erection, on garden city lines, of 204 cottages designed for the re-housing of persons disturbed by the construction of the Royal Albert Dock extension (south). The houses, which are situated on the Prince Regent's Lane estate, West Ham, are built in blocks of two or more, with gardens or open spaces at front and rear. The cottages have artistic frontages, and the internal accommodation is arranged to suit the needs of working-class families. The fittings include bath, copper, gas cooking range, meat safe with outside ventilation, and wardrobe cupboards to bedrooms.

THE Housing and Town Planning Committee of the Malling Rural Council reported that a letter from the Local Government Board had been considered in regard to making provision for the erection of cottages after the war, and they recommended that a circular be sent to all the Parish Councils suggesting the calling of parish meetings to ascertain the number of cottages which it was estimated would be required at the termination of the war. This was approved by the Council.

MR. ROBERT HUNTER, well known in Dundee and district as an architect and civil engineer, died on the 9th inst. Mr. Hunter, who was a native of Strathmartine, served his apprenticeship with Mr. Smart in Perth. He was afterwards for many years associated with the late Mr. Robert Blackadder. Starting business on his own account, he carried out a large amount of architectural and engineering work in city and country. Buildings in Whitehall Street and Crescent, including the western corner block at the top of the street and Mathers' Hotel, were designed and erected under his direction. Mr. Hunter was an active member and office-bearer of the Dundee Architectural Association.

MR. EDWIN BROWN, surveyor to the Burgess Hill Urban District Council, has died suddenly at the age of sixty-three. In his official capacity he did much for the rise and progress of the town, supervising many schemes of public improvement, and, as sanitary inspector, paying special attention to the health of the district. In June 1914 a system of new automatic filters and other works of sewage disposal was installed at Burgess Hill, under the supervision of Mr. Brown, and not only has a pure effluent been produced, and a stream freed from pollution, but the farm has been made to pay.

IN reference to the general question of electric supply the following resolution is recommended to the Sheffield City Council: "That the Council are of opinion, having regard to the important part at present played by local authorities in the supply of electrical energy, and the extensive character of the capital commitments in relation thereto, that local authorities, owning electrical undertakings, are inadequately represented on the Committee appointed by the President of the Board of Trade to consider and report on the future supply of electric power for all classes of consumers in the United Kingdom, and strongly urge upon the President of the Board of Trade the necessity of increased representation being given to them, both in the interests of the ratepayers and the consumers of electrical energy."

AT the annual Court Leet of the Duke of Beaufort for the borough and manor of Swansea, Sir Griffith Thomas, Chairman of the Harbour Trust, mentioned that negotiations were opened before the war for finding accommodation for the Anglo-Persian Oil Corporation, and though they had been suspended for a time, they had now not only been reopened, but were almost completed, and works were to be erected in the neighbourhood of Neath for the reception of the crude oils it was intended to import at Swansea and to export after rectification. Once these negotiations were completed, and the works ready, there would be three steamers of large size coming to Swansea weekly with crude oil, and if all these anticipations were carried out he firmly believed the income and trade of Swansea would increase by something like £40,000 to £50,000 a year.

A SPECIAL sitting of the Liverpool Consistory Court was held at the Church House, Liverpool, on the 5th inst., before the Worshipful Harold Chaloner Dowdall, M.A., B.C.L., Chancellor of the diocese, when the Rev. Albert Baines, M.A., Vicar, and Arthur Richard Pilkington and William Corbett, wardens, applied for permission to take down and dispose of portions of the outer wall of St. Mary's Church, St. Helens, which was partially destroyed by fire in December 1916, and to clear the site of débris, as may be found necessary, and to construct on the north side of the site of the old church a building intended for a temporary chapel, utilising for that purpose the north wall and the vestry. The faculty was granted. The Chancellor said the temporary chapel would have accommodation for 150 people. It was hoped in time to rebuild the church on the site, which would be extended.

AT a recent meeting of the Swinton (Yorks, West Riding) Urban District Council, Mr. S. C. Ward called attention to the desirability of encouraging the industrial development of the district by direct means, and suggested that a small Development Committee should be appointed for the purpose of reviewing the possibilities of the district and of securing the release of suitable land for the use of manufacturers who might be induced to enter the area by the very obvious commercial advantages it afforded. There was a keen demand for land in South Yorkshire for industrial purposes, and Swinton could honestly say that in no other district were more suitable sites to be obtained. The township was splendidly served in the matter of transport facilities, and its current district rate (2s. in the £) would bear comparison with that of any urban district for miles around. He suggested that the Development Committee should immediately approach the agent of Earl Fitzwilliam and other landowners to induce them to release by sale or lease land for the purpose. It was decided to form the Development Committee suggested.

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THE
Architect and Contract Reporter.
FRIDAY, JUNE 22, 1917.

EDITORIAL NOTICES.

The Editor will always be pleased to examine drawings or articles with a view to publication, but cannot be responsible for the safety of those sent, though every reasonable care will be taken. Contributors desiring payment should clearly state their wishes. No payment will be made until after publication, and a commission to prepare articles or drawings does not necessarily imply acceptance or approval.

CONTRACTS OPEN.

CARDIFF.—June 23.—For painting various elementary schools and schoolhouses during months of July, August, and September, for the Glamorgan County Council. Mr. T. M. Franklen, clerk of the County Council.

CHELMSFORD.—June 27.—For painting parts of interior and exterior of 106 working-class dwellings in Rainsford Lane, for the Town Council. Mr. P. T. Harrison, A.M.I.C.E., borough engineer, Municipal Offices, Chelmsford.

CHESHUNT.—June 26.—The Cheshunt Urban District Council invite tenders for the erection of a small-pox hospital, comprising ward block, administration block, and laundry and mortuary block. Mr. J. E. Sharpe, surveyor, Manor House, Cheshunt. Deposit £2 2s.

DARTFORD.—June 27.—For external painting and repairs, &c., at the Darenth Industrial Colony, Dartford, Kent, for the Metropolitan Asylums Board. Mr. D. Mann, clerk, Office of the Board, Embankment, E.C.

GLASGOW.—June 25.—For erection of janitor's house at short-term school, Shettleston, for Glasgow School Board. Deposit £1 1s. Mr. J. Clark, School Board Offices, 129 Bath Street, Glasgow.

GOODWICK (PEMBROKE).—July 6.—For external painting Goodwick Council school and internal colouring of adjoining dining-room buildings, for the Pembrokeshire Education Authority. Clerk of Works, County Education Offices, Haverfordwest.

HUDDERSFIELD.—June 28.—For erection of twenty-two dwelling-houses (in four separate blocks) at Bradley; also construction of a new street in connection therewith, for the Corporation of Huddersfield. Town Clerk, Town Hall, Huddersfield.

HULL.—June 29.—For the builders' and ferro-concrete work in connection with foundations and pond for water cooling towers on land adjoining the electricity works, Sculcoates Lane, for the Corporation. Chairman of the Electricity Committee, Town Clerk's Office, Hull.

KEIGHLEY.—June 25.—For colouring and whitewashing at various schools, the work to be done during the summer holidays, for the Education Committee. Mr. H. Midgley, secretary, Education Offices, Keighley.

KIRKCALDY.—June 25.—For limewashing (1) slaughterhouse premises, Cowan Street; (2) stables at Burleigh Street and Overton Road; (3) public lanes, closes, &c., throughout the burgh, for the Town Council. Mr. W. L. Macindoe, town clerk, Kirkcaldy.

LLANDYGWYDD (CARDIGAN).—June 30.—For repairs and alterations, in the holidays, to school buildings and playground at Llandygwdd N. School. Major Griffith, Llwynduris, Llechryd, Cardiganshire.

OSWESTRY.—June 27.—For painting the following stations, for the Cambrian Railways Co.—viz.: Montgomery, Moat Lane, Bow Street, Llwyngwril, Arthog, Pensarn, Harlech, Portmadoc. Mr. G. C. McDonald, chief engineer, Cambrian Railways, Oswestry.

SALFORD.—June 25.—For the supply and erection of steam boiler housing, comprised of steel framework and corrugated sheeting. Borough electrical engineer, Frederick Road, Salford.

SHOEBURYNESS.—June 25.—For painting the two gasholders at the gasworks, the Council supplying all paint to be used, for the Shoeburyness Urban District Council. Mr. F. J. Glasscock, Council Chambers, Shoeburyness.

TROWBRIDGE.—June 30.—For carrying out works of alterations, additions, repairs, renovations, &c., at the following Council schools during the summer vacation, 1917, for the General Education Committee of the Wilts. County Council, in accordance with plans and specifications prepared by the county surveyor—viz.: Atworth, Bromham; Bremhill; East Tytherton; Brinkworth; Chippenham Ivy Lane; Chippenham Westmead mixed and infants'; Corsham Pickwick; Corsham Methuen; Corsham Neston; Corsham boys' and infants'; Downton; Donhead St. Mary; Donhead Ludwell; Edington and East Coulston, Great Cheverill; Highworth mixed and infants'; Idmiston; Luckington; Milton Lilbourne; Melksham Lowbourne infants'; Pewsey mixed and infants'; Purton; Rodbourne Cheney; Rodbourne Cheney Haydon; Ramsbury; Ramsbury Axford; Stratton St. Margaret; Upper and Lower Stratton boys' and girls' and infants'; Shalbourne Oxenwood; Trowbridge Newtown; Trowbridge Adcroft boys' and girls' and Margaret Stancomb; Wanborough; Wroughton girls' and infants'; Wootton Bassett; Westwood with Ilford and West Dean Council schools. Mr. J. G. Powell, county surveyor, Trowbridge.

TENDERS.

BRADFORD.

For alterations to café premises at Cartwright Memorial Hall, for the Corporation.

M. BOOTH & SONS (*recommended*) . .	£413 15 0

CARDIFF.

For supply of apparatus to electricity department of Corporation.

Accepted tenders.

British Thomson-Houston Co., switchgear .	£379 0 0
Ditto, ditto	362 0 0
British Electrical Transformer Co., transformer	285 0 0
REYROLLE & Co., switchgear	222 8 0

DUBLIN.

For erection of houses on first section of Spitalfields area, for Dublin Corporation.

J. M. CLARKE (*recommended*) . . .	£22,918 0 0

HORSHAM.

For extending the Warnham sewage outfall works, for the Horsham Rural District Council.

A. E. AYLING (*accepted*)	£445 13 2

LEITH.

For repair of damaged sewers at Starbank Road and Trinity Crescent, for Town Council.

WISHART, Easter Road, Leith (*accepted*) . .	£127 0 0

LONDON.

For maintaining the carriageway and footways of Blackfriars for twelve months, for the City Corporation.

G. J. ANDERSON (*accepted*)	£850 0 0

For repairs to schools, for the Edmonton Education Committee.

Accepted tenders.

A. MONK, Eldon Road School . . .	£600 0 0
A. MONK, Croyland Road School . . .	575 0 0
BROWN & SON, Lower Latymer School . .	32 16 0

For supply of a motor converter, for Woolwich Borough Council (Electricity Committee).

BRUCE, PEEBLES & Co., Edinburgh (*accepted*)	£3,825 0 0

SHEFFIELD.

For alterations at cleansing station, Plum Lane, for the Corporation.

W. MARLOW & SONS, LTD. (*accepted*) .	£445 11 7

TOTTINGTON (LANCS.).

For building a length of retaining wall at Loe Bridge, Bolton Road, for the Tottington Urban District Council. Mr. L. KENYON, C.E., surveyor.

W. A. HARGREAVE, Market Street, Tottington (*accepted*)	£85 10 3

WALES.

For erection of a covered way at the sanatorium, Pontsarn, near Merthyr Tydfil, for the Guardians of Merthyr Tydfil Union. Mr. T. RODERICK, architect, Ashbrook House, Aberdare.

J. T. JAMES, 2 Brynmorlais, Penydarren, Merthyr Tydfil (*accepted*)	£233 0 0

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TELEGRAMS: "STAIRS, BRISTOL."
TELEPHONE: 4940, 4941, 4942.

C. JENNINGS & CO. Ltd.

We have the following

SPECIAL LINES

(Offered without engagement till we accept order in writing).

Timber & Plywood Importers, Joinery Works, General Woodworkers,

PENNYWELL ROAD, BRISTOL.

We have a varied Stock of Timber, Neponset Wall and Ceiling Boards (now Plywood and Timber are expensive, you should try Neponset already decorated), and Plywood at Bristol, London, Manchester, Newcastle, Leicester and Porthcawl (South Wales).

We will quote prices or consider reasonable offers for items below (quantities are only approximate, may be more or less). These are only a few details of our softwood and hardwood stocks, which contains as great a variety as any stock in U.K.

OUR BRISTOL STOCK INCLUDES—

Prices named include delivery at some Stations for quantities.

NEW PITCH PINE LOGS.—25 to 34 ft. long by 10in. to 16in. square, 8/6 to 7/6 cub. ft. Also Secondhand Log material (P. Pine, Oregon, etc.), 2ft. to 9ft., few longer. 4/- to 5/- cub. ft.

Note particulars of Half-Logs at Hull (see other column).

JARRAH LOGS, from 1ft. up to 20 ft. long. Secondhand material, suitable for road blocks, etc. Price 4s. to 6/- per cubic ft., according to length.

SECOND-HAND TIMBER, 6,000 Cubic Feet, lying at Bristol, Porthcawl, Leicester and Swansea from 2/9 to 3/6 per cube, according to selection.

Equal to new for some purposes (items 3, 4, 9, & 11, are exceptionally good), nearly free from nails, and most of it free from bolt-holes. Suitable for cheap Casemaking. Approximate details as follows, but other sizes in stock. Portions in Deal, Oregon, Pitchpine. Can be creosoted if required.

Item 1.—6in. by 4in., lengths 7ft. to 9ft. Suit well for sleepers, fencing posts, etc.

Item 2.—8in. and 9in. by 3in., length 8 to 11ft.; few longer (only few pieces).

Item 3.—9in. by 2in. mixed lengths, 6 to 14 ft.

Item 4.—9in. by 3in. Nosed one edge, about 6ft. long.

Item 5.—10 and 11in. by 1½in., 10 and 11in. by 2in. Mixed lengths. Not many in stock.

Item 6.—Shedding boards 1in. thick, 4 to 12 ins. wide. Some 1½in. and 1¼in.

Item 7.—Tongued and Grooved board 1½in. by 8 to 9½in. wide. Mixed lengths. Few 6in. by 2in. nom.

Item 8.—About 4ft. long by 6in. by 3in. with small groove in centre, 2in. by 1½in., suit for sleepers, fencing, posts or guttering.

Item 9.—6ft. 7in. and 7ft. 6in. long, 8in. to 9½in. by 1½in. Some nosed one edge, some square edge. Sound.

Item 10.—Quantity 3in. by 2in., various lengths, chiefly 6 to 14 ft.

Item 11.—4in. by 3in., 7 to 9 ft. long.

PITWOOD.—Current prices on application.

BARGAIN.—We are cutting large quantities various hardwoods, including :—

BEECH.—Extra good—may be suitable for Boot Lasts, Planes, etc. Also Ash, Wych Elm; English Silver Birch, suitable for cabinet work; Willow, Larch, Elm and other woods. Can supply in the round or cut to plank. Prices on application.

CABINET MAKERS—NOTE! Special line dry Birch planks (square edges). Seasoning 3 years, 2in. and 3in. thick, 4/6 cube. Few 2½in. and 4in., at 4/9.

WET BEECH and BIRCH, not edged, cut to any thickness planks at 8/6 cube, or near offers considered for large lines. Price for steaming and drying on application.

U/S ARCHANGEL WHITE ENDS (Extra good and bright), 5 to 11 ft. by 1¼in. thick.

3in. wide at	£29	10	0	per std.
4in. "	£29	15	0	"
5in. "	£30	0	0	"
6in. "	£30	10	0	"
7in. "	£31	0	0	"
8in. "	£31	10	0	"
9in. "	£34	10	0	"
10in. "	£36	10	0	"

ARCHANGEL (or equal) Red (for joinery, also building purposes). About 15 standards, unsorted quality. 7 in. by 1½ in. £39, 8 by 1½ £40, 9 by 1½, £41 std.

CASEWOOD, CRATEWOOD.—Approximate average width nearly 5in. by ¼in. thick (some very full), sample bundle on application, nearly all 4fts. (few 4ft. 6in. if required) £17 8s. 9d. std., or 2s. 1d. per cube, or could crosscut to your length exactly for about £18 18s. std., or 2s. 3½d. cubic; most of it will suit for staves. Also Oak or Hardwood staves, special bargain lines on application.

ARCHANGEL STAVES AND CRATEWOOD.—24in., 28in., 30in., 36in., 42in. long, 2in. and wider ¾in., ¼in., ⅜in., ½in. thick, any widths or lengths selected if required, 5ft. to 11ft., 2in by ½in., 3in. by ½in., etc. £28 to £32 std.

Casewood cut to sizes or nailed and made up into boxes if required.

PARCEL ARCHANGEL STRIPS. 4/11 ft. lengths. Price £31 std.

30 Standards ½ by 3 — 2 Standards ½ by 2½
15 " ½ by 2 — 10 " 1 by 1

Also some 12 ft. and up, ½ by 3 in.; price £33 std.

PARCEL SOROKA. 5/8ft. RED ENDS just arrived (11in. to 3in. thick).

	U/S quality £ s. d.
4in. to 5in. wide	31 10 0
6in.	32 0 0
7in.	32 10 0
8in.	33 0 0
9in.	36 0 0
11in.	38 0 0

WEATHER BOARD, 6in. by 1in to ¼in. Red Rebated and planed, at 27/6 square (nearly all 12ft. and up); Unplaned at 26/6 square, shorter lengths chiefly 2ft to 10ft. We can crosscut to lengths ready for use for a small extra cost.

CAROLINA PINE Planed one side and two edges 9in. to 12in. wide (chiefly 10in.) by 1in thick. Good quality free from knots.

9in. at 5d. per square foot
10in at 5½d. "
11in. at 6d. "
12in. at 6½d. "

PARCEL U/S ARCH.—White (about 30 stds.), long lengths. Seasoning 2 years—

1¼in. by 11in. at .. £42 std.
1¼in. by 10in. at .. £40 "
1¼in. by 9in. at .. £38 "

TIMBER BARGAIN.

NOTE.—3 by 9 and up is very scarce at present.

Unsorted Spruce very sound, contains some wane, but very few shakes, now lying at Bristol, Porthcawl, Leicester, and Pembroke Dock.

We may be able to charter a small sailing vessel (hold 40/50 standards) to carry a parcel to any port promptly.

				Price per Std. £ s. d.	Price per Cube. s. d.
About 10 stds.	4	by	7	35 5 0	4 3½
" 1 "	4	by	8 and up	37 15 0	4 7
" 5 "	4	by	6	34 15 0	4 2½
" 1 "	4	by	5	34 7 6	4 2
" 20 "	3	by	12 and up	38 12 6	4 8½
" 10 "	3	by	11	38 12 6	4 9½
" 10 "	3	by	10	38 12 6	4 8½
" 20 "	3	by	9	37 2 6	4 6
" 15 "	3	by	8	34 7 6	4 2
" 10 "	3	by	7	33 15 0	4 1½
" 10 "	3	by	6	33 2 6	4 0½
" 18 "	3	by	5	32 15 0	3 11½
" 16 "	3	by	4	33 7 6	4 0½
" 4 "	3	by	3	31 12 6	3 10
" 3 "	2½	by	7	35 5 0	4 3
" 1 "	2½	by	6	33 0 0	4 0½
" ½ "	2½	by	5	32 0 0	3 10
" ½ "	2	by	8 and 9	37 3 6	4 6½
" 1 "	2	by	7	35 7 6	4 3½
" 2 "	2	by	6	34 7 6	4 2
" 4 "	2	by	5	33 2 6	4 0½
" 3 "	2	by	4	35 2 6	4 3
" 3 "	2	by	3	33 7 6	4 0½

Carriage paid to some stations on large quantities at above prices.

Also 40 stds. Spruce nearly all square edge, lying at Neyland, Pembrokeshire, S. Wales. **Includes some of the aforementioned sizes.** Price 40/- per stand. extra to above as it is superior quality. The Parcel includes the following extra sizes, viz. :—

Size Inches	Price per Std. £ s. d.	Price per cube. £ s. d.
1 by 3, 4, 5	35 7 6	0 4 3½
1 by 6, 7	37 15 0	0 4 7
2½ by 4, 3	33 0 0	0 4 0

Above prices for selected sizes but mixed lengths fair average of parcel. Selected lengths ex piles about £1 std. extra.

Sawing can generally be arranged on following basis viz. :—Deeping at 3/6 per 100 sq. feet; Ripping 1/3 per 100 lineal feet.

Prices for crosscutting also planing and T. and Grooving on application.

SWEDISH WHITE SHELVING, 5 stds. planed.

11in. by 11in. at £42 std.
10in. by 11in. at £39 "
11in. by ½in. at £43 "
11in. by ½in. at £45 "

Few 1½in. cheap boards 9, 10 and 11in. wide.

BUILDING RED.—About 1std. 11in. by 1½in., 15 to 25ft. long. 4th quality Red (common), chiefly 22ft. and up £36 std. About ½ std. 9in. by 1½in ditto, chiefly 15 to 22ft. long £35 std.

20 stds. 6in. to 8in. by 11in. Dry Hardwood Boards, suitable for cart bottoms, etc. 3½d. ft. sup.; or selected material MAY SUIT IN PLACE OF MAHOGANY, TEAK, BIRCH, SATIN WALNUT, AMERICAN OAK, ETC., AND FOR AMMUNITION BOX ENDS. TRY A SAMPLE LOT. PRICE 3½d. FT. SUPER.

COLUMBIAN AND OREGON PINE.—10 stds., 12in. by 4in. Good sound quality primes, 5/6 cubic ft.; 4in., 6in., 8in. clears, long, 7/- cube; short lengths cheaper.

5 stds. wide ARCHANGEL RED AND WHITE outside slabs, or suit for Casewood Boards. Special Bargain, £25 15s. std., 10in. wide by 9ft. long, vary from 1¼in. thick to ½in., charged as 1in., or will cut same to ½in., ¼in., or ¾in. Boards, or crosscut to length, price on application.

¾in. by 12in. and few narrower Oregon Pine casewood, 3½d. square foot., also 1in. at 3½d. Samples of this casewood can be seen at Leicester as well as Bristol.

1 in. TEAKARD FLOORING.—Suitable for factories. Tongued and Grooved (not bored) for secret nailing when required, 8in. and 6in. wide, 41/- square, 4in. and 3in. wide 47/- square.

BLOCK FLOORING.—Soft or Hardwoods. Prices on application.

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AMERICAN OAK, 1¼in. boards, seasoned, good medium quality (also few 2in.), at 7/- cube.

FIGURED AMERICAN OAK, 9in. by ¾in. Bone dry, at 5d. foot lineal.

TOY MAKERS—NOTE! About 500 cube short ends, Spruce, etc., chiefly 6 to 11in, wide by ½ to 3in. thick, average length 10 or 12in. Price 2/9 cube.

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MALLETS.—Heavy and light, various hardwoods. Prices on application.

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YELLOW PINE.—Few 1½, 1¾ and 3in. thick, chiefly 11in. and up (few narrower), also Pine offcuts, 2 by 1¼in. up to 3½ by 2in., mostly 9ft. and up.

Our Stocks in various Ports in United Kingdom include :—

300,000ft. Birch, Alder, Ash, and Oak PLYWOOD. Detailed and priced sheet on application. Also timber of all descriptions.

OAK TREES.—Small and large lying in Bristol; price quoted where they lie or carriage paid. Also small Ash trees and Planks, some cut down 2 years ago, some fresh cut.

ASH.—Stretcher Poles in stock, 2in. by 2in. by 8ft. long, prices as they are, or worked ready for use on application. AMERICAN ASH ROUND Butts, lying at Bristol, 6s. 9d. cube.

English and American ASH PLANKS, 1in. up to 5in. thick, from 4s. 6d. to 9s. 6d. cubic ft according to size and quality required.

Our Leicester Stock includes—

2 Wooden Tanks, may suit contractors for lime.

2 stds. dry Hardwood Boards, 6in. by 1in. and 8in. by 1in., 3½d. sq. ft.

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20,000ft. 1¼in. by 1¼in. angle palings, 5ft. to 8ft. lengths (about 2in. across the flat side). Or will suit for crate makers, corners of boxes, flower or tree sticks, 1/6 100ft. Also some in Bristol, same size and smaller stuff, 1in. by 1in., at 7d. 100ft.

1 std. 2½in. by 6½in. good Red and White, long lengths and other sizes.

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11in. by 1¼in. p.pd. Also 10in. and 11in. by 1in.

9in. by 3in., and 7in. by 2in., secondhand. Also new and secondhand ¾in. and 1-in. shedding board and tapered weather boards.

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THE COMMERCIAL METERING OF AIR, GAS, AND STEAM.*

By JOHN LAWRENCE HODGSON, B.Sc., Assoc.M.Inst.C.E.

THE Paper first discusses the various bases which are suitable for the measurement of compressed air supplied in bulk, and emphasises the desirability of measuring in energy rather than in weight or volume units. The basis of measurement adopted by the Victoria Falls and Transvaal Power Company and by the Rand Mines Limited was the quantity of air which would be compressed from mean atmospheric pressure and temperature on the Rand to the pressure of delivery by the expenditure of the energy represented by one kilowatt-hour in an isothermal compression process of the same overall efficiency as that which obtained between the indicated power in the steam-cylinders and the air delivered in the case of certain specified compressors then in use upon the Rand; it being understood that these compressors should be put in first class order for the purpose of the test, and run under normal conditions as regards speed and pressure.

Descriptions of the meters and overload devices designed by the Author for use in connection with the Victoria Falls and Transvaal Power Company's air-supply scheme on the Witwatersrand are then given. Two types of meter were used in connection with this scheme; in that supplied to the Power Company a Venturi tube was used, and in that supplied to the consumers, a weighted gate placed in the air-way.

The more interesting parts of these meters are described; including the arrangements whereby the various factors upon which the energy required to compress the air delivered at each point of supply depends are measured and combined so as to give a counter and diagram record of the energy passing; the bell, which is sensitive to a Venturi head of less than 1/10,000th lb. per square inch and which will measure Venturi heads up to 0.85 lb. per square inch; the pressure diaphragms, by means of which a powerful movement is obtained from a small change in the pressure; and the air-driven centrifugal escapement by means of which the integrating gear is accurately timed.

Two types of overload device are then described; the one cutting off the flow if the maximum discharge contracted for is exceeded; the other throttling the discharge when necessary, to limit it to the maximum contracted for. These overload devices are so arranged that they can readily be set to cut off or to regulate (as the case may be) at various maximum flows within their range. The illustrations given include diagrams of the various parts referred to, and of a typical meter installation on the Rand.

The Paper next describes the testing plant which was specially built for calibrating these meters by Messrs. Fraser & Chalmers to the specification and under the supervision of Mr. A. M. Robeson, Mr. A. Smart, and the Author, and which is now re-erected at Ferreira Deep on the Witwatersrand and forms the standard air-testing plant for South Africa.

Details are given of the large displacement meter which forms part of this plant, and which is capable of passing 1,200 lbs. weight of air per minute, and of the precision manometer, by means of which differential pressures can be measured over a large range to within 1/1000th inch head of oil.

The relation between liquid and gaseous discharges through the same nozzle is then discussed, and it is shown, for various typical nozzles and orifices, how the gaseous discharge can, under certain conditions, be calculated if the liquid discharge is known. A table is given which shows how the economy in the power required for testing meters or wind-resistance models diminishes with the density of the fluid used.

The importance of designing the discharge nozzles of "fair shape," if the theoretical discharge-formulas are to be used to obtain the discharge, is emphasised.

The results of the Author's experiments on the variation of the discharge-coefficient for different types of nozzles and orifices for various values of the ratio of the upstream to the throat pressure are stated.

The experimental discharge coefficient for square-edged orifices placed in a bored pipe line is given, and the necessity for the careful placing of the pressure holes, and for geometrical similarity, is emphasised. A set of curves which show the rapid variation of the pressure of the fluid in the vicinity of the orifice is given. The work on square-edged orifices was carried out by the Author in order to obtain an easily reproducible standard of air measurement, but he prefers to use round-edged orifices for commercial work on account of their smaller liability to be damaged by erosion or careless handling.

The difficulties met with in measuring pulsating flows by means of nozzles and orifices are next discussed, and tables are given which show for three typical wave-forms of various amplitudes, and for two different laws of damping, the nature and the approximate amount of the error likely to occur in the measurement.

Other meters described are:—(1) A meter by means of which pulsating flows of any wave-form and amplitude may be accurately measured. (2) A meter designed by the Author for general mining work. This is extremely simple in construction, and is easily handled and installed and maintained. It can be arranged to register in weight, volume, or energy units, as required. It will measure such pulsating flows as are met with in practice with sufficient accuracy, and it corrects automatically for variations in pressure. (3) A steam-metering instrument designed by the Author. (4) A gas-meter which has been very successfully used for the metering of large volumes of gas. It will measure down to one-twelfth of full load, and, unlike all gaseous meters which depend upon a differential pressure measurement, the registration of this meter is independent of the density of the gas passing.

The Paper is accompanied by an Appendix in which the necessary calculations and theory are given.

* Abstract of a Paper read at the ordinary meeting of the Institution of Civil Engineers.

BRITISH PATENT SPECIFICATION.

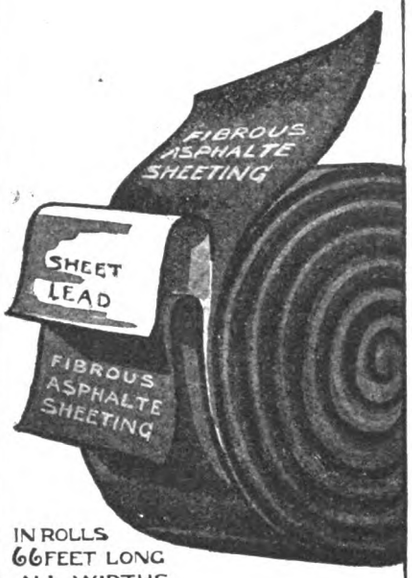
Selected by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the completed specification.

No. 105,923 (5,832. Date of filing in Great Britain April 25, 1917.—Prior date under International Convention April 28, 1916). Concrete Stairs: Armand Ducret, 16 rue Industrielle, Montreux, Switzerland.—This invention has for its object to provide an improved stair of reinforced or non-reinforced concrete, the treads and risers of which are composed of separate horizontal and vertical plates fitted with their ends respectively in horizontal and vertical grooves in the stringers. Fig. 1 is a longitudinal section of the improved stair. Fig. 2 is a partial vertical section on the line 1—1 of fig. 1, and fig. 3 is a partial plan. The improved stair comprises steps composed of treads or horizontal plates 1 and risers or vertical plates 2 of reinforced or non-reinforced concrete, all these plates being separate from one another. The sides of the stringers 3 situated opposite each other are formed with projections 4 and 5 substantially of triangular shape. Between the projections 4 and 5 that are adjacent to each other there are vertical grooves 6, and between the projections situated one above the other there are horizontal grooves 7. The ends of the risers 2 engage in the grooves 6, whilst the ends of the treads 1 engage in the horizontal grooves 7. The lower edges of the risers 2 engage in grooves 8 in the upper surface of the treads 1. As shown in fig. 1, the said lower edges of the risers 2 may be bevelled or be made with or in the

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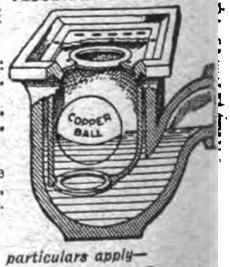
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shape of tenons. The cross section of the grooves 8 is shaped correspondingly. The erection of the improved stair is effected as follows:—After the stringers 3 have been arranged parallel to each other at the desired distance apart, the insertion of the steps begins at the bottom. The first riser 2 rests in or on the ground or lower floor, its ends engaging in the corresponding vertical grooves 6 of the stringers 3. The first tread 1 is then placed above the lowermost riser 2 with its ends engaging in the corresponding horizontal grooves 7 in the stringers.

Fig. 1

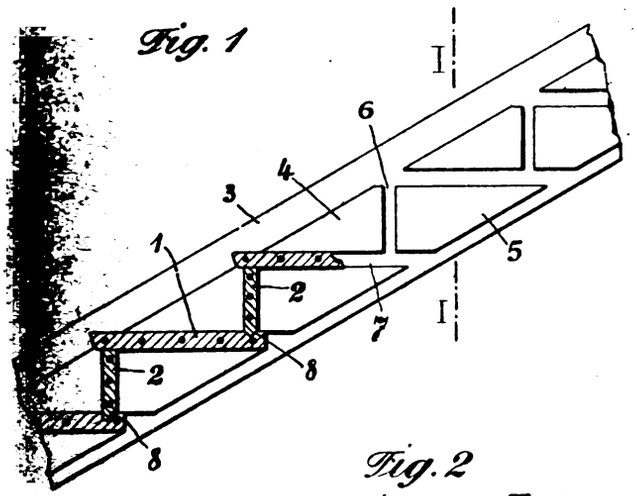


Fig. 2

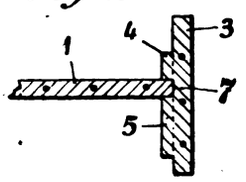
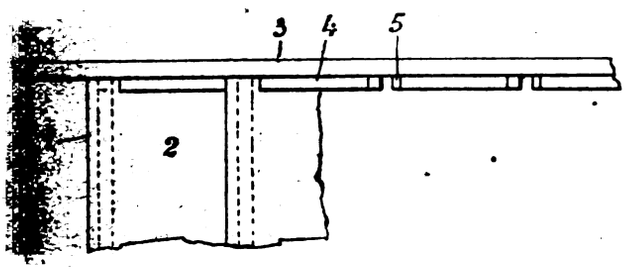


Fig. 3



and with the groove 8 on a level with the vertical grooves intended to receive the ends of the next riser 2 above. Then this latter riser is placed in position in such a manner that its lower edge engages in the groove 8 in the next tread 1 below, and so on. The steps of the improved stair thus hold together of themselves. The improved stair has the advantage that its parts can be manufactured beforehand, and its erection in a building can be effected in a minimum time without scaffolding. May 23, 1917.

THE last two steel girders have been placed on the down line of the thirteen-arch bridge of the Caledonian Railway which spans the North Esk River near Craigo. The reconstruction of the bridge commenced in October last on the up line, and, with the exception of two weeks at the New Year, two girders have been laid every Sunday. It is now about seventy years since the bridge was built, the massive piers being made of stone and the arches of wooden beams. The wood-work did not last many years. It was replaced by metal beams, and these have now been taken down and steel girders placed on the substantial stone piers, the latter being lowered about 8 feet to suit the girders. It is expected that both lines will be open for traffic about the middle of June. The contractors for the girders and iron work are the Brandon British Building Co., Motherwell, and for the mason work Mr. Hall, Aberdeen.

PATENT SPECIFICATIONS.

Selected by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

No. 103,993 (Jan. 30, 1917, dated under International Convention Feb. 7, 1916).—Alfred Hairon, rue Baillon, Calais. Improvements in or relating to automatic grabs.

106,287 (March 14, 1916).—J. L. McKim, 22 Great St. Helen's, London, and John Johnston, c/o The Globe Pneumatic Engineering Co., Ltd., 1 Victoria Street, Westminster. Improvements in pneumatic apparatus for applying rough cast or other plaster to the walls of buildings or structures or other surfaces.

106,292 (May 30, 1916).—E. O. C. Howells, Haynstone, Stoke Park, Coventry. Improvements in or relating to the manufacture of concrete or artificial stone blocks, slabs, and the like.

106,333 (May 20, 1916).—John Hines and D. H. Smith, 16 Chalfont Court, Regent's Park, W. An improved scarifying machine for roads and the like surfaces.

106,399 (Sept. 21, 1916).—J. A. F. Christensen, 18 Hans Tausensgade, Odense, Denmark. Improvements in devices for joining concrete blocks disposed in a pillar or in a series.

Any of the above specifications may be obtained from J. D. Roots.

LONDON ELECTRIC RAILWAYS.

COMPULSORY ACQUISITION OF WESTMINSTER PROPERTY.

IN our last issue we gave a report of the proceedings in this case. We are now able to announce that Mr. A. Virgoe Buckland has issued his decision.

The Umpire has decided that the amount of compensation payable is £4,588.

THE business and factory in England of the German firm of Carl Zeiss have passed into British hands, the concern having been purchased by Messrs. Ross, Ltd., manufacturers of optical instruments in this country since 1830.

THE executive of the Halifax Business Club protests most strongly against the proposal to erect new electricity works, believing that the present time is most inopportune for the Corporation to enter into any negotiations for the purchase of land or any great expenditure.

AT a meeting of the Council of the Scottish Town-Planning and Housing Committee held in Edinburgh, the reply from the Local Government Board with regard to the complaint of delay by the central authority was regarded as unsatisfactory. It was agreed to present another request to the Board, urging that the question should, if possible, be dealt with speedily.

A MEETING of parishioners of Tamworth has considered the steps to be taken to raise a memorial to the late Vicar of the parish (the Rev. the Hon. M. B. Peel), who was recently killed in France, where he was serving as chaplain to the Forces. It was decided to erect a stained-glass window in the north side of the Parish Church, and a preliminary committee was appointed to further this object.

THE Liverpool House Builders' Association, at a meeting last week, adopted a draft report dealing with the points raised by Lord Rhondda at the interview with the Property Owners' Association, held recently at the offices of the Local Government Board. The members then reviewed the possibility of erecting 9,000 houses within three years after the war, provided the suggestion was agreed to that certain land and financial facilities should be given. They pointed out that high rents could not be paid by the Liverpool working classes, who had to incur tramway fares in going to and from their employment.

AT the Swansea Harbour Trust meeting last week the Chairman, Sir Griffith Thomas, announced that the negotiations with the Anglo-Persian Oil Company had now almost come to fruition. When this large company's works were erected in the neighbourhood, it was anticipated by the company that there would be produced an income to the Swansea Harbour Trust amounting to anything between £3,000 and £5,000 a year. He hoped, therefore, that during the next year the port would be in receipt of a very considerable income from that source. The works once in operation, he had no doubt, would lead to many other works being established in the neighbourhood.

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CORRUGATED ASBESTOS SHEETS.

UP to the present time corrugated asbestos sheets have been made in countries outside the United Kingdom, and the supply has been limited. The inherent advantages of them are so obvious, however, and the demand, in normal times, promises to be so great, that it is encouraging to know that works have been erected and equipped in this country specially to manufacture them. One of many instances, we hope, of a determination in future to produce goods instead of importing them and to establish an industry here to compete for the markets overseas.

The newly-erected works of the British Everite and Asbestilite Works, Ltd., are situated at Bold, near Widnes, having excellent facilities for transit by rail, the Manchester Ship Canal, and the Mersey. The Chairman is Mr. E. F. Jucker, Italian Consul in Manchester, and a member of the firm of Felber, Jucker & Co., who have been for many years large importers of asbestos-cement sheets, Mr. C. W. Browne being the commercial manager.

On a recent visit to the new works the whole process of manufacture of the corrugated sheets, named "Everite," was open for our inspection, but it is the finished product, its uses and advantages that will more interest our readers.

In use it is adapted for most cases where galvanised-iron sheets are employed. Its advantages are many. It is light in weight, and therefore a lighter form of construction can be employed, effecting economy in cost of erection. It is impervious to weather and withstands acid fumes, does not require painting or the application of any preservative compound, thus lessening the expense of upkeep. It does not crack or warp, is not laminated, so does not peel, is a non-conductor—the interior of the buildings being kept cool in summer and warm in winter—is strong and becomes stronger with age, and is fire resisting.

The sheets are made in the usual commercial sizes the corrugations being 3 inch, the English standard, or 2½ inch if required for foreign trade, and are guaranteed to be equally spaced, ensuring a water-tight joint in the overlay. By the methods of production equal strength is attained in every part of the sheet, the top of the corrugation being as strong as any other part.

The new works also produce plain sheets and tiles under the name of "Asbestilite."

As a proof of the lasting qualities of asbestos-cement sheets our attention was directed to roofs that were thus covered twenty years ago at Altrincham, which are now in a perfectly sound condition, the asbestos tile used being imported by Messrs. Felber, Jucker & Co.

The asbestos fibre is obtained from Canada, and from recently discovered deposits in South Africa—Russia as a source of supply being cut off for the time being—and the cement used is British Portland.

The new company is interested in similar enterprises at Sydney (New South Wales) and at Boulogne-sur-Mer, the former in active production and the latter ready to supply asbestos sheets when the rebuilding of the occupied territory of France is commenced. For the present the output of the British Everite and Asbestilite works is taken by the Government, but when fully developed it will be equal to twenty million square yards of sheeting per annum, and supplies will be then available for the requirements of the building trade.

VARIETIES.

MR. HERBERT BATSFORD, architectural publisher, of High Holborn, left £6,034.

THE will has been proved at £1,015 of Second-Lieutenant A. D. Aitken, R.E., architect, who was killed last August in Egypt.

A RARE early Saxon silver coin, slightly smaller than a shilling, has been discovered under the east port wall at the old Roman city of Caerwent, near Newport. It bears the inscription, "Eadmund Rex," and was unearthed by a man who was digging a potato plot.

BOYLE'S latest patent "air-pump" ventilators, supplied by Messrs. Robert Boyle & Son, ventilating engineers, 64 Holborn Viaduct, London, have been employed by Messrs. The Pennycook Patent Glazing and Engineering Co., Ltd., 11 West Regent Street, Glasgow.

A MEETING will be held at Repton on June 30, at 3.30 P.M., to consider the details of the Old Reptonian War Memorial scheme and to appoint trustees of the fund which is being raised. The scheme aims first at providing a visible memorial to the fallen, and then at establishing exhibitions for the sons of old boys, with a preference for the sons of those who have fallen or suffered in the war.

AT a meeting of the Clyde Lighthouses Trustees in Glasgow Mr. Francis Henderson, who presided, reported in regard to the widening and deepening of the navigable channel within the jurisdiction of the Trust. They hoped, he said, to have the whole of the channel completed to the authorised depth and width before the winter set in—namely, 27 ft. deep at low water, and 350 ft. to 450 ft. wide, so that the largest vessels likely to trade to Glasgow could pass in and out freely.

AT Cardiff City Council last week the Lord Mayor announced that steps were being taken with a view to the establishment of the shipbuilding industry in Cardiff, and assured the promoters of sympathetic consideration. The Deputy Lord Mayor said in the past the Development Committee had discussed the matter, but at that time the difficulties that presented themselves were those of labour and housing. He understood, however, that these matters had now been largely overcome. Councillor Smith said that something like 1,000 men would be employed, and Councillor Thomas said that local landowners had behaved most generously towards the promoters.

AT a meeting of the Aberdeen University Court—Principal Sir George Adam Smith presiding—the committee appointed in connection with the proposed Chair of Engineering at the University reported that there had been a conference with, among others, Sir John Struthers, Secretary of the Scottish Education Department, and also visits to Glasgow Univerisity, the Royal Technical College, Glasgow, Edinburgh University, and the Heriot-Watt Technical College, Edinburgh. The committee had prepared a memorandum on the subject, and they recommended that it should be printed, and that a special meeting of the Court should be held at an early date to consider it. This was agreed to.

THE National Union of Holloway Friendly Societies at a meeting at Gloucester decided to forward a memorial to the Prime Minister welcoming the increasing public recognition of the necessity of health preservation, calling attention to the magnitude of the work performed by the societies, and urging the Government to set up a representative committee to inquire into the proposals relating to the formation of a Ministry of National Health and to recommend the best methods to be adopted. Mr. Lloyd George, who has received a similar memorial from the National Conference of Friendly Societies, has informed Alderman Askew, the president, that the whole matter is under his personal consideration. He is to receive a deputation representing all the insurance societies of the country at an early date to discuss the matter.

AT the recent meeting of the Birmingham District Power and Traction Co., Ltd., the chairman, Mr. C. S. B. Hilton, dealt with a problem which is of acute interest to motor-omnibus undertakings and the motor industry in general. He pointed out that at present every motor omnibus in regular work contributes a ½d. per mile, or between £50 or £60 per annum, in taxes. It was originally arranged that such taxes should be spent on road maintenance, but during the war the revenue from this source has been diverted to other objects. Meanwhile individual road authorities are endeavouring by other means to compel omnibus owners to contribute to the repair and up-keep of the roads. This policy he regarded as very unsatisfactory from every point of view. If continued, it will undoubtedly have the effect of seriously crippling the development of motor transport in the public interest.

SECOND-LIEUTENANT E. KING (awarded the Military Cross), who met his death while flying in one of the eastern counties of England, was the elder son of Mr. and Mrs. E. King, Rosean, Corstorphine. He was educated at Boroughmuir Higher Grade School, and, on leaving school, attended the architectural classes of the Edinburgh College of Art for five years, where he had a distinguished career, being first prizeman each year. He was engaged as an architect in the office of Messrs. Peddie & Forbes Smith, and also in that of the late Mr. J. Hippolyte Blanc. Within a fortnight of the outbreak of war he joined the Royal Scots, and, volunteering for active service, was sent to the Front. Later he obtained a commission in the K.O.S.B., and subsequently became attached to the R.N.A.S., and took part in flights over the Sinai Peninsula, Palestine, and Asia Minor. He acted as observer to Commander England when the railway centre at Homs was destroyed. While in Egypt he qualified as flying officer, and the day following his death was the date on which he was to have left this country again for the Front.

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THE
Architect and Contract Reporter.
FRIDAY, JUN 29, 1917.

EDITORIAL NOTICES.

The Editor will always be pleased to examine drawings or articles with a view to publication, but cannot be responsible for the safety of those sent, though every reasonable care will be taken. Contributors desiring payment should clearly state their wishes. No payment will be made until after publication, and a commission to prepare articles or drawings does not necessarily imply acceptance or approval.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

CONTRACTS OPEN.

BARROW-IN-FURNESS.—July 2.—For painting and decorating several schools, in accordance with specified bill of quantities which may be obtained upon application to the Borough Engineer and Surveyor, Town Hall, for the Education Committee. Chairman of the School Management Sub-Committee.

BODFFORDD (ANGLESEY).—July 5.—For the following painting, &c.—viz.: Dwyran Council school and house; Llandrygarn C.S. colouring classroom, &c. Mr. W. O. Jones, Tanyfron, Bodffordd.

BRADFORD.—July 4.—For inside painting, &c., at various schools, for Bradford Education Committee. City Architect's Office, Town Hall, Bradford.

CLYDEBANK.—July 10.—For erection of 100 houses at Kilbowie, Clydebank, for the Commissioners of H.M. Works and Public Buildings. Principal Architect, H.M. Office of Works, 3 Parliament Square, Edinburgh. Deposit £1 1s.

DUBLIN.—July 9.—For the following works, for the Great Northern Railway Co. (Ireland)—viz.: cleaning and painting of Malahide, Donabate, Balbriggan, Castlewellan, and Annaghmore Stations; cleaning and painting of nine company's houses at Dundalk; cleaning and painting Messrs. Guinness's stores, offices, &c., Belfast. Mr. Morrison, secretary, Amiens Street Terminus, Dublin. Deposit, £1 1s.

DUNDEE.—June 30.—For alterations on shop at 100 Blackness Road. Mr. J. Thomson, city engineer, 91 Commercial Street, Dundee.

DUNDEE.—July 2.—For mason work, plaster work, joiner work, painter work, &c., for small alterations required on office of parks and cemeteries department, 93 Commercial Street, for the Dundee Water Commissioners. Mr. G. Baxter, engineer and manager, 93 Commercial Street.

DURHAM.—July 11.—For painting the following bridges, for the Durham County Council—viz.: (1) Crook; (2) Daddryshield Wear; (3) Daddryshield No. 2; (4) High Team; (5) Ireshopeburn; (6) Killhope Foot; (7) Killhope Mill; (8) Low Team; (9) Nancy Pasture Foot; (10) Newton Cap; (11) Parkhouse Pasture; (12) Penshaw; (13) St. Helen's, Auckland; (14) Westgate; (15) Wearhead; (16) Wolsingham. A. E. Brooks, County Surveyor, Shire Hall, Durham.

GOODWICK (PEMBROKE).—July 6.—For external painting Goodwick Council school and internal colouring of adjoining dining-room buildings, for the Pembrokeshire Education Authority. Clerk of Works, County Education Offices, Haverfordwest.

GRIMSBY.—June 30.—For extensions to the isolation hospital (corrugated iron) at Immingham, and painting of roofs, sides, and external woodwork of existing building and new block, for the Grimsby Rural District Council. Engineer and Surveyor's Office, Council Offices, Grimsby. Deposit £1.

HIPPERHOLME.—July 2.—Construction of 130 lineal yards dry walling and reconstruction of red brick bridge. Mr. G. W. Thompson, engineer and surveyor, Urban District Council, Hipperholme.

HUDDERSFIELD.—July 4.—For the painting, colouring, &c., of various schools within the borough, for the Corporation. Town Clerk, Town Hall, Huddersfield.

PORTH.—July 4.—For interior and exterior painting in accordance with specification which can be seen upon application to the Librarian. Chairman, Cymmer Colliery Workmen's Library, Porth.

SELBY.—July 7.—For painting outside of hospital and premises on Selby Common, for the Selby Joint Isolation Hospital Committee. Mr. J. Townend, clerk, 1 Abbey Place, Selby.

SOUTHAMPTON.—July 11.—For proposed alterations and additions to laundry of Poor-Law institution, St. Mary Street, Southampton, for the Guardians. Deposit, £1 1s. Messrs. Jurd & Sanders, Bargate Chambers, 1 High Street, Southampton.

WHITTINGHAM.—July 3.—For building wall and other work in connection with extension of Whittingham Churchyard. Mr. A. Hunter, Whittingham.

TENDERS.

BRADFORD.

For electric lighting plant for Grassington Sanatorium.

HEWITT & KELLETT, Lancashire boiler	£548 0 0
NEWTON, BEAN & MITCHELL, horizontal engine	320 0 0

For alterations to premises at the Cartwright Memorial Hall, for the Corporation Libraries, Art Gallery, and Museum Committee.

MICHAEL BOOTH & SON	£413 15 0

CHEADLE.

For construction of a retaining bank at the sewage-disposal works, for the Cheadle and Gatley Urban District Council.

T. GOSLING & SONS (*accepted*)	£110 5 0

CHELMSFORD.

For the provision of sanitary accommodation at the public baths in Waterloo Lane, Chelmsford, for the Town Council. Mr. P. T. HARRISON, A.M.I.C.E., borough engineer.

H. POTTER, Chelmsford	£103 0 0

LONDON.

For supply and erection of 3,500-kw. turbo-generator set, with G.E.C. machine, for the Poplar Borough Council.

WILLANS & ROBINSON (*recommended*)	£20,389 0 0

For supply of boiler feed pump, for Hammersmith Borough Council.

Plunger Type.

Worthington Pump Co.	£566 0 0
Ditto (larger pump)	660 0 0
Hayward-Tyler & Co.	560 0 0
J. P. HALL & SON, Peterborough*	359 0 0

* *Recommended for acceptance.*

For fixing gas main to all gas-cooking fittings, &c., at central kitchen, for the Hammersmith Borough Council.

Brentford Gas Co.	£105 7 9
FALKIRK IRON CO., LTD. (*accepted*)	63 15 0

For supply of motors, &c., for St. Marylebone Borough Council (Electricity Committee).

BRITISH WESTINGHOUSE ELECTRIC AND MANUFACTURING CO., LTD., two air-pump motors	£329 0 0
EDISON ACCUMULATORS, LTD., special battery for the electric vehicle	216 0 0

For works at various institutions, for the Metropolitan Asylums Board.

D. T. JACKSON, 106 Ripple Road, Barking	£683 0 0

WALES.

For erection of a covered way at the Sanatorium, Pontsarn, near Merthyr Tydfil, for the Guardians of Merthyr Tydfil Union. Mr. T. RODERICK, architect, Ashbrook House, Aberdare.

J. T. JAMES, 2 Brynmorlais, Penydarren, Merthyr Tydfil	£233 0 0

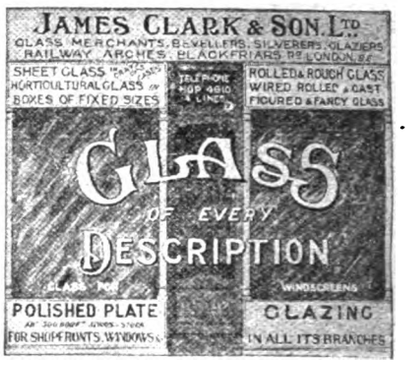
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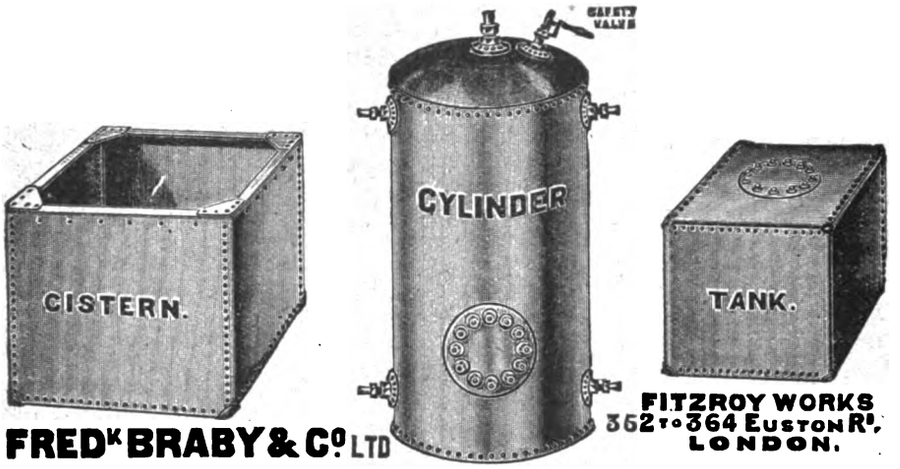
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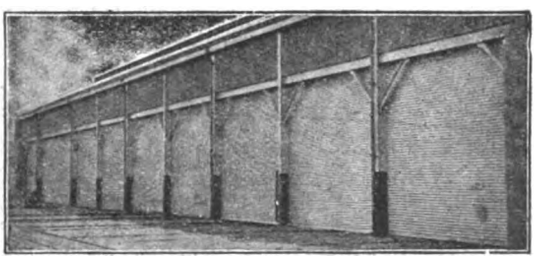


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LONDON ASSOCIATION OF MASTER DECORATORS.

A GENERAL meeting of this Association was held at the Holborn Restaurant on May 25.

There was a very large attendance, and the chair was occupied by Mr. John Anderson in the absence of the President. Mr. Alexander Davidson, the Secretary, was also unable to attend, having been called to Cornwall upon important business, but Mr. F. Dakin kindly consented to act for him.

The Wages Committee presented their report in connection with the demand by the Men's Union for an increase of wages and a revision of the Working Rules, and submitted the following offer which had been made to the men:—

Mr. J. Bancroft,
Society of Operative House and Ship Painters and Decorators.

May 17, 1917.

Dear Sir,—With reference to your letter of the 10th inst., and the conference which we have had this evening, I beg to inform you that my Wages Committee are prepared to recommend our members to pay the same rates of pay and allowances as the London Master Builders' Association, and for the same period as said Association, provided the revision of the Working Rules in other respects stands in abeyance until after the war.

On hearing from you that you will accept this offer, we will at once take the necessary steps for having the recommendation put before this Association.

Yours faithfully,
(Signed) A. DAVIDSON.

The Society, through their Secretary, replied as follows:—

Alexander Davidson, Esq.,
London Association of Master Decorators.

Dear Sir,—With reference to the conference of members of my Committee with your Committee on Thursday, May 17, at the termination of which you agreed to hand us a letter setting forth the offer of an increase of 1*d.* per hour, and the non-alteration of the Working Rules till after the war, I am instructed to say:—

That my Committee after due consideration accept same on behalf of our members, and have instructed me to reply accordingly.

We have at once acquainted our members of the same and told them to expect such increase to take effect on and from May 21.

We further propose to approach the Master Builders and ask them to consent to take part in a joint conference, with a view of agreement on the question of Working Rules; on this matter I will again write you.

Enclosed please find the award, and I am instructed to send copy of same to firms who are unattached to either of the two Employers' Associations.

Yours faithfully,
(Signed) J. BANCROFT.

It was felt at the meeting that the Men's Society had not correctly interpreted the offer made, and it was resolved, on the motion of Mr. Andrews, seconded by Mr. Campbell and carried unanimously,

"That this meeting approves of and ratifies our letter of May 17 to the Operative Painters' Society and pledges its members to abide by it."

It was agreed that a circular giving these facts should be issued to all members.

The Chairman reported that Mr. Dakin and others had attended on a Deputation to the Minister of Materials on the subject of white lead, &c., and the following report was read by Mr. Dakin:—

"That on Thursday, May 24, he attended with Mr. Cantrill on behalf of the National Association of Master House Painters and Decorators, and with Mr. Parsonage and Mr. Piper on behalf of the National Amalgamated Society of Operative House and Ship Painters, together forming a deputation of the National Painters' and Decorators' Joint Council.

"That ten propositions were put forward by the deputation, with a view o either the total or partial removal of the restrictions issued by the Minister of Materials in April last.

"That the deputation found the Minister of Materials was opposed to any alteration whatever of the rules and restrictions, which have been published, owing to the fact that the Government found itself bound for the conduct of the war to make those restrictions, and in consequence of same any further reduction of blue lead to white lead had been discontinued.

"The representative of the Director of Materials stated, however, that they were prepared to waive the certificate of an architect or surveyor as to the necessity for exterior work (except for jobs of considerable magnitude). In the case of ordinary house property it would be sufficient to obtain a letter from the owner that such work was necessary for preservation, and at the same time stating what time had elapsed since the same had been previously painted."

A meeting of the Wages Committee was held at 14 Queen Victoria Street, E.C., on June 8, 1917, when there were present:—Mr. John Anderson (in the chair), Mr J. Milton, Mr. C. L. Roberson, and Mr. A. Davidson, Secretary. The following letter from the Operatives' Society dated June 4 was read:—

Dear Sir,—I am directed to forward you the following information.

Yours faithfully,
(Signed) J. BANCROFT.

"LONDON MASTER BUILDERS' ASSOCIATION.
"Special Council Meeting, June 1, 1917.

"The following resolution was carried:—

"That having heard the representatives of the Operatives, and given due consideration thereto, this Council agrees to a War Bonus of 1*d.* per hour being granted to workmen belonging to the Societies with whom this Association has Working Rule Agreements and the Operative Painters' Society, applicable only in the London area, and starting from June 9 next.

"This extra payment to apply to those who are not engaged upon work covered by the Arbitrators' Award of May 14 last."

It was unanimously resolved that the following letter be sent to the Men's Society in reply:—

June 8, 1917.

Dear Sir,—I duly received your letter of the 4th inst., informing me that the Council of the Master Builders' Association has agreed to grant your Society a War Bonus of 1*d.* per hour, in addition to the 10*d.* per hour rate of pay as from 9th inst., and I am, therefore, advising the members of this Association that they are at liberty to do the same, and that the first payment with the War Bonus will fall to be made on Saturday, 16th inst.

In conformity with my letter to you of 17th ult., it is, of course, understood that the revision of the Working Rules remains in abeyance until after the war.

Yours faithfully,
(Signed) A. DAVIDSON.

It was further resolved, for the information of the members of the Masters' Association, to issue a circular giving the above facts.

NATIONAL SERVICE.

The following letter has been addressed by the Secretary to the Director-General of National Service:—

"With further reference to your letter of 21st ult., addressed to the Secretary of the London Association of Master Decorators, we, the undersigned representative members of the Painting Trade in the London area, beg leave to submit to your consideration the accompanying memorandum with reference to the application of the Restricted Occupations Order to the Painting Trade.

"In doing so we would say that when the Minister of National Service made his pronouncement that any trade would be permitted to engage men who could produce a National Service Certificate, it was felt that that concession might largely meet the difficulties enumerated

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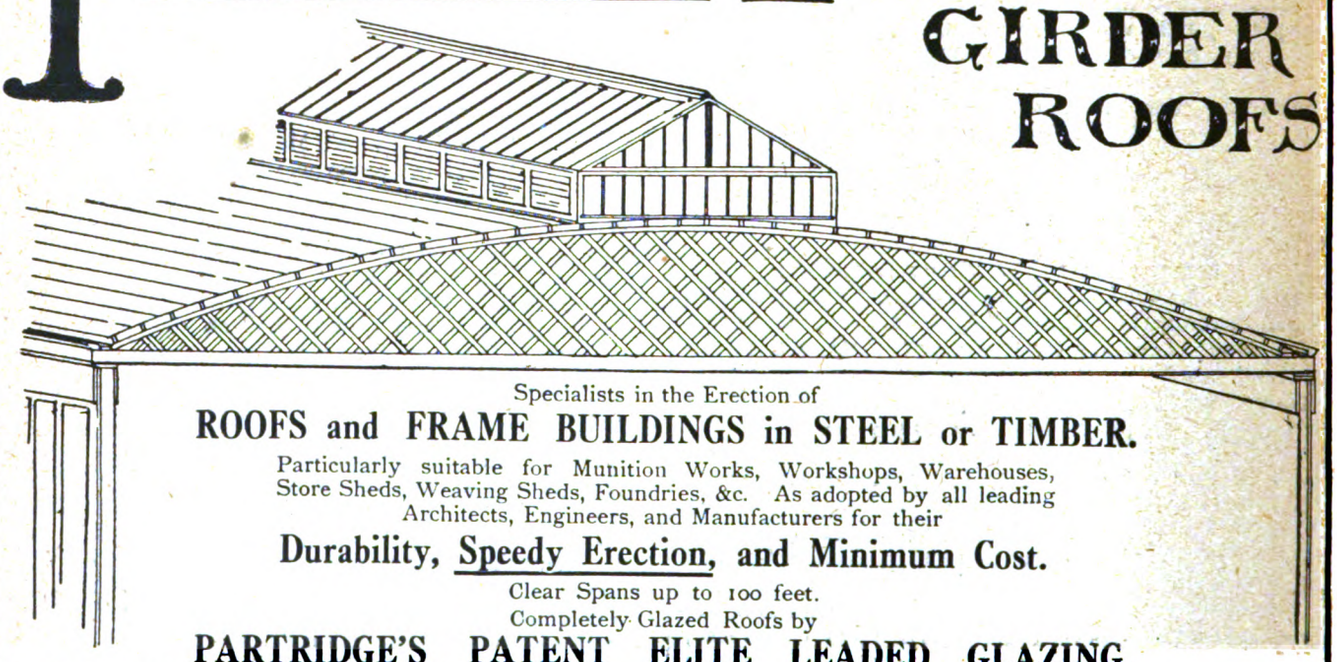
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in the memorandum enclosed, but it is found that in actual working the concession does not to any appreciable extent do so, for on application being made to the Labour Exchanges, members of the trade are informed that there are no men available.

"We therefore respectfully request you to consider the statements made in the accompanying memorandum, and with the same deference we would remind you that in a recent speech, of which I enclose an extract, Sir George Cave stated in the House of Commons, that with respect to non-essential trades it was not the wish of the Government entirely to close them down, and he propounded arguments why, in the interests of the Nation, they should be kept alive.

"We now submit that unless the Order is modified, the desire of the Government to keep those trades alive will be defeated, for the trade which we represent is now entering upon the time of the year when the bulk of its work has to be done, and as it is found to be impossible to obtain men under the new conditions, we would request you to be good enough to review the matter with the object of ameliorating the difficulties under which it is placed, so far as may be compatible with National interests.

"We are, Sir,
Yours obediently,
(Signed by) M. C. COWTAN, *President of the Association.*
(Sir) CHARLES ALLOM, *of Messrs. White, Allom & Co.*
J. G. HOWARD, *Managing Director of Messrs. Howard & Sons.*
CHARLES HINDLEY, *of 473 Oxford Street.*

MEMORANDUM REFERRED TO IN LETTER TO DIRECTOR-GENERAL OF NATIONAL SERVICE, DATED APRIL 30, 1917.

1. It is understood that it will not be possible for a firm of painters to add to its staff or re-engage or fill the places of men discharged, or men who may for other reasons leave, by re-engaging men between the ages of 18 and 61 after February 28, 1917, except for the execution of Government work, or on the production of a National Service Certificate.

2. The Order came into operation on a date when many such firms were employing the minimum weekly numbers of men employed by them during the year.

3. Many firms at certain periods of the year have on their weekly pay sheet from fifty to 150 men but who at the date of the Order had only from two to twelve men employed.

4. Small firms or firms of medium size, which together form the bulk of the trade, are the most seriously affected by the Order, and to many such firms it will mean total extinction.

5. On the other hand, some firms may be placed at an advantage, for generally having a considerable staff on their pay sheets, even although the weekly number employed at the date of the Order may have been their minimum for the year, it will most probably be sufficiently large to enable them to keep going and secure work which the less favourably placed firms find themselves unable to undertake.

6. And, again, there may be a temptation to the larger firms to keep on a greater staff than may be immediately necessary, in order to cope with an increase of work when it arrives, and, in fact, certain firms can always find work for their painters upon their own establishments so as to keep the men employed during slack periods, and from which work they could be taken off immediately customers' work had to be done.

7. In the large majority of the firms which will be the most affected by the Order, it has taken many years to build up their businesses and establish their connection, and the heads of many of these firms have grown up with the businesses, and are of an age and training which would preclude them from taking up any other trade for a livelihood.

8. It should also be pointed out that what may be classed as factory trades will not suffer to any extent comparable with the painting trade, which is a purely journeyman one, for the former trades, even although they may have been employing their minimum number of men at the date of the Order, will in all probability be able to carry on with that number, whereas in the painting trade the men are employed by the hour, and are being engaged and discharged as may be necessary.

9. If the Government desires to close down this particular trade or impose restrictions which will render it unworkable, either of which is unthinkable, the question will arise as to the position of owners and leaseholders of property upon whom there are legal obligations to perform painting repairs; and again there will arise the even more important question of hygiene which will be most felt in public buildings, hospitals, hotel bedrooms, lodging houses and by householders generally.

The following reply has been received:—

Dear Sir,—With reference to your letter of May 1, I have to say that as a result of arrangements which have been made between this Department and representatives of the building trades, it has been decided that those trades will be treated as being on the same footing as trades not mentioned in the Schedule to the Restricted Occupations Order, and the provisions of that Order will accordingly only apply in respect of them as regards the engagement of men in any of the occupations specified in Section XI. of the Schedule to the Order under "Other Trades."

Yours faithfully,
(Signed) F. H. McLEOD.

THE Town Council of Cowdenbeath have furnished the Convention of Burghs with the following information regarding housing. They state that the population of the burgh is 15,000 and the assessable value £46,000. There are no dwelling-houses vacant, and they estimate that to meet the present demand twenty-five houses of one room each, 200 of two rooms, and fifty of three rooms are required. The demand would be greater at the end of hostilities.

DURING the last four years 220 new houses have been built in Selby. The figure gives an indication of the amount of progress made in the matter of housing in the urban district. The bulk of the new houses have been erected by the Urban Council, who have pursued a public-spirited policy. They have arranged for the building in all of 187 houses, at a total cost roughly of £45,000. Employers of labour have also erected a number of houses for their workpeople, and these have been of great assistance in lessening the shortage of tenements. The majority of these houses have been built on the East Riding side of the river, outside the urban area, by the Olympia Oil and Cake Co., and the Warehousing and Transport Co., who planned a model village and made substantial additions to it from time to time.

VICKERS, LTD., have purchased from the Controller the goodwill, stock-in-trade, &c., of the Bosch Magneto Company in Tottenham Court Road, London, and have formed a new subsidiary company under the title of the British Lighting and Ignition Company, Ltd. The company will manufacture in England magnetos of the highest grade, and Messrs. Vickers hold the whole of the share capital. The name chosen for the magnetos is "Blic," from the initials of the company. The works of the new company are in full working order, and hundreds of magnetos are being turned out weekly to meet the requirements of the authorities. Preparations are also being made with a view to coping with the demand after the war.

ANGLESEY is making excellent progress with the Welsh Heroes Memorial scheme. Some time ago a gentleman who is interested in the movement in that county promised to subscribe £100 to each of the seven weaker districts in the county upon condition that each district would raise £400 in sums of not less than £25 by the end of the present month. The first district to comply with the terms of that offer is Valley, where a total of £475 has now been reached. The total amount received or promised in Anglesey up to the present is approximately £7,000, and it is confidently expected that by the end of the present month the terms of the offer will have been fulfilled in the other six districts, and also that the total will have been increased to at least £10,000.

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VARIETIES.

AN alabaster mural tablet has been placed in the north aisle of the choir of York Minster to the memory of the late Dr. Tempest Anderson.

DURING the past few weeks there has been a "boom" in house property at Torquay. Business men from London and the Midlands on retiring have acquired property with a view to taking up their residence.

ON Thursday, 21st inst., the chancel screen, which forms a decorative feature to St. Alban's Church, Coombe Road, Preston, was dedicated by the Bishop of Lewes. Although not elaborate, the completed screen is lofty and striking in design, and has a central archway surmounted by a cross.

A WAR memorial to Blackley soldiers has been unveiled in the Mount Carmel Roman Catholic Church grounds, Blackley. The memorial, which is in the form of a Calvary group, was contributed to by the general public in the Mount Carmel parish, and cost £120.

AFTER continuous work for two and a half years, Mr. F. Turner, the Brentford librarian, has completed the classification of the bequest of the late Mr. Thomas Layton to the town. The catalogue includes 21,000 items, of which about 18,000 are books and the remainder prints, coins, pre-historic weapons, &c., which are now exhibited in the local museum.

AS next month is the centenary of Jane Austen's death, which occurred on July 18, 1817, it is proposed to place a tablet on Chawton Cottage, near Alton, Hants, recording the fact that she lived there from 1809 to 1817, and that from it all her works were sent out into the world. The tablet will be executed by Mr. Evelyn Simmons, Lic. R.I.B.A., after a design by Miss E. G. Hill, which comprises decorations taken from objects connected with the novelist's life.

THE observations on the rate of growth of cracks in the buildings of the Tower of London, says the report of the National Physical Laboratory, have been continued. No serious disturbances have been detected, but careful examination of the roadway on the quay wall facing the river has revealed that movements of the wall not amounting to more than a few hundredths of an inch have taken place, presumably of the nature of a slide towards the river of the whole block of masonry which carries the roadway.

MAJOR G. H. PEAKE AND MRS. PEAKE, of Bawtry Hall, have expressed their desire to give £10,000 towards the cost of a new Infirmary at Doncaster, in memory of their eldest son, Lieutenant Raymond Peake, of the Coldstream Guards, who was killed in action last September. The need of further hospital accommodation for the town of Doncaster has been felt ever since the colliery developments in the district. The only stipulation of the donors is that the work of extension shall be undertaken within five years of the termination of the war, as it is desired to see the memorial realised within a reasonable time.

"IT would be difficult to imagine an up-to-date office which had no need of a Directory, an office without the telephone, and so is it quite as impossible to be without a copy of the 'Mercantile Year Book and Directory of Exporters,' if you are at all interested in the export trade." These words were quoted to us by a gentleman who has had considerable experience in export matters, and judging from the contents of the latest issue, his remarks were fully justified. But after all he was only quoting our paragraph relating to this valuable little work in 1916. The issue before us is fully up to the standard of previous years.

AT a recent meeting of the East Lancing (Sussex) Sea Defence Commissioners it was reported that timber and other materials are now coming along satisfactorily. Consequently, good progress is now being made with the defences. The damage to groynes resulting from the gale of November last has now nearly been put right. Other important work is also well under way, and so far as can be ascertained the scheme is being normally proceeded with. There is one point of the foreshore causing the Commissioners anxiety, and it is probable that additional work will have to be taken in hand to cope with the situation.

GOUROCK Town Council have decided to proceed with the second contract in connection with the Daff water scheme, and to carry through the work on their own behalf. This contract consists of the piping from the Roman Bridge, near Inverkip, to their present system, and the cost is estimated at £11,000. The formation of the reservoir and accompanying works, together with piping from the dam to the Roman Bridge, is proceeding as expeditiously as circumstances will permit, the scarcity of labour having to a considerable extent hampered the contractors, and it is expected that storage may be begun during the coming winter. Owing to the increased price of material and higher wages, the original estimate is likely to be greatly exceeded, the total sum being now put at over £25,000.

AT a Court of Governors of St. George's Hospital, held last week, it was stated that it had been definitely decided not to consider further the question of the sale of the site. The chairman explained that it was impossible to obtain for it anything like the sum which the governors would entertain. The question of the removal thus disposed of, the governors were anxious to get on with their improvement scheme, but for this they could not at present obtain the sanction of the King's Fund, and, although the King's Fund had no legal right to veto the improvements, yet it was imperative for the governors to take note of the objection, or they might run the risk of losing their annual grant. It was stated that the cost of provisions had shown a tremendous increase during the war, thereby making the institution more than ever in need of public support.

A REUTER'S telegram from Winnipeg says that Dr. Robert Bell, formerly Chief Geologist to the Geological Survey of Canada, has died at Rathwell, Manitoba. Born at Toronto in 1841, he studied at Edinburgh University, and later at McGill University in Canada, where he took his medical and surgical degrees. He joined the Geological Survey of Canada in 1857, and made extensive topographical and geographical surveys in the Dominions. The Bell River, which he surveyed in 1895, was officially named after him. He accompanied in 1884 and 1885 the "Neptune" and "Alert" Expeditions to Hudson's Strait and Hudson's Bay as medical officer, naturalist, and geologist, and he was also geologist to the "Diana" Expedition, which, in 1897, surveyed the south coast of Baffinland and penetrated to the great lakes in the interior.

THE National Art Collection Fund has maintained its excellent work throughout the war, and its thirteenth report shows that the past year has been a particularly rich one in the treasures presented to the national collection through the fund. Among them are the ten Rossetti pictures, including "The Tune of Seven Towers," and "The Blue Closet," formerly the property of Mr. George Rae, of Liverpool, and the lovely "Passover in the Holy Family," which belonged to Mr. Arthur Severn, and "Lucretia Borgia," given by Mr. Charles Ricketts. These Rossettis give the Tate Gallery more right to be considered the repository of British art than a decade of Chantrey purchases. A rare and surprising work presented through the gift of Mr. Joseph Devine is a portrait sketch by Degas of Pellegrini ("Ape" of "Vanity Fair"). Other gifts are a drawing by De Chavannes and many other interesting works, amongst them an etching of General Booth, by Mr. Francis Dodd, and a colour print of Queen Victoria, by Mr. William Nicholson.

A TABLET to the memory of the late Lieut. S. Morris Bickersteth, West Yorkshire Regiment, has been unveiled by Lieut.-Col. Sir Berkeley Moynihan, R.A.M.C., at the Leeds Parish Church. The memorial is of moderate size, richly modelled, and coloured in imperishable gilded bronze and enamels. A plaque of Limoges enamel contains the inscription which is in toned white lettering on a black background, and reads:—To the glory of God. In memory of S. Morris Bickersteth, Rugby and Christ Church, Oxford, Bachelor of Arts, Lieutenant (acting Captain) 15th West Yorkshire Regiment (City of Leeds Service Battalion), 5th son of the Rev. Samuel Bickersteth, D.D., Vicar of Leeds, and of Ella, his wife. Born June 1st, 1891; gave his life July 1st, 1916, leading his men in the attack on Serre, the first day of the Battle of the Somme. . . . "Content."—Psalms xl., 10. A narrow border of blue enamel *in a* panelled gilt frame surrounds the plaque, and this is mounted on a gilt bronze tablet having a curved, moulded pedimented top. This tablet carries, in high relief, three gilt cherubs' heads with wings of blue enamel, these deftly suggesting the idea of the three Guardian Angels. Above the gilt tablet are the coat of arms of the Bickersteth family, with motto, crest, helmet, and mantling, in "champ élevé" enamel. These arms were first borne by William Bickerstaffe, of Bickerstathe, in the county of Lancaster, in the time of Edward I., about 1277. The motto is "Frappe fort." The memorial has been designed and executed by Mr. W. Bainbridge Reynolds, of London.

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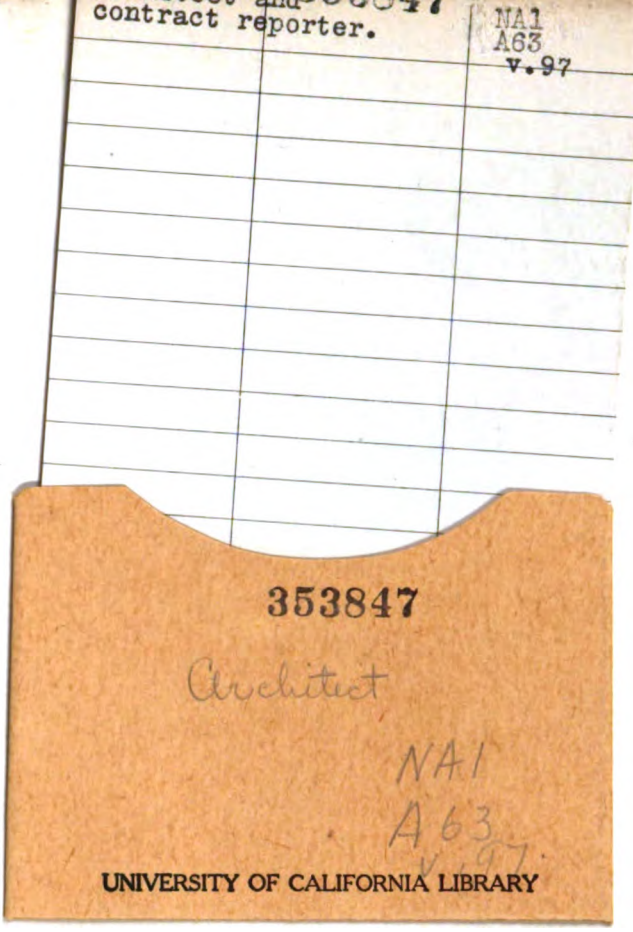
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